



**FINAL  
SUPPLEMENTAL ENVIRONMENTAL  
IMPACT STATEMENT**



**DISPOSAL OF PORTIONS OF THE FORMER  
HOMESTEAD AIR FORCE BASE, FLORIDA**

**DECEMBER 2000**



**SUMMARY**



### ***Our Goal***

The Air Force seeks to transfer property at former Homestead Air Force Base (AFB) in a manner that supports local plans for economic revitalization of south Florida and protects Biscayne Bay and the nearby national parks.

### ***Purpose of the Summary***

This is a summary of the Supplemental Environmental Impact Statement (SEIS) for the disposal and consequent reuse of portions of former Homestead Air Force Base in southern Florida. This summary was prepared as part of the SEIS to concisely provide information to interested parties. It provides an overview of the findings of the SEIS.

### ***The Air Force and the Federal Aviation Administration thank you for your input***

The Air Force wishes to understand the environmental implications of deciding for what purpose and to whom to convey surplus property at Homestead AFB. The SEIS examines the reasonably foreseeable consequences of that decision, as reflected in the likely reuse of the property after conveyance.

The Federal Aviation Administration (FAA) wishes to understand the environmental implications of its decisions, including unconditional approval of a one-runway Airport Layout Plan that accommodates a civil airport and possible federal funding for eligible development projects.

Neither the Air Force nor FAA proposes to directly develop the surplus property; that would be accomplished by the property recipients, perhaps with the assistance of federal funding by the FAA.

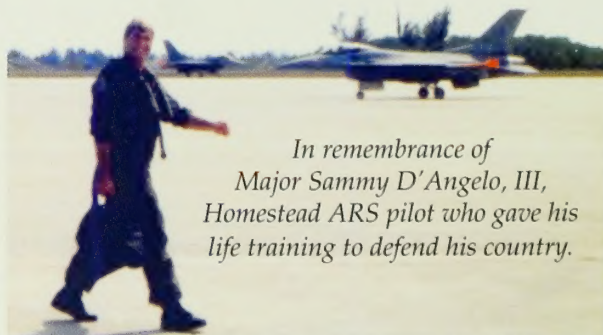
The Air Force and FAA have made reasonable estimates of alternative ways in which the property might be developed and used subsequent to their decisions.

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### ***Want More Information?***

The back cover of this summary identifies the locations throughout south Florida where the Final SEIS and appendices can be reviewed and a point of contact for further information.



*In remembrance of  
Major Sammy D'Angelo, III,  
Homestead ARS pilot who gave his  
life training to defend his country.*



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## Who Has Prepared the SEIS

This Supplemental Environmental Impact Statement has been prepared by the Air Force and the Federal Aviation Administration as co-lead agencies.

- The Air Force needs to dispose of the remaining surplus property at former Homestead AFB as directed by law.
- The FAA has special expertise and legal responsibility to recommend disposal of surplus property for airport purposes, to manage airspace use, and to fund airport development projects.

Three other federal agencies are cooperating agencies:

- The National Park Service manages nearby Biscayne National Park and Everglades National Park and is responsible for conserving natural and cultural resources at the parks.
- The U.S. Fish and Wildlife Service has responsibility for biological resources, including threatened and endangered species, and the nearby Crocodile Lake National Wildlife Refuge.
- The U.S. Environmental Protection Agency is responsible for administering the Clean Air Act; the Clean Water Act; the Resource Conservation and Recovery Act; and the Comprehensive Environmental Restoration, Compensation and Liability Act as they relate to reuse of former Homestead AFB.

Homestead AFB, located in southern Florida, was realigned to Homestead Air Reserve Station (ARS) in March 1994. Most of the facilities on Homestead AFB were destroyed by Hurricane



Andrew in 1992. Subsequently, the Defense Base Realignment and Closure Commission recommended that Homestead AFB be realigned, and their recommendations were required by law to be implemented when Congress did not reject them.

Of the 2,938 acres comprising the base at the time of realignment, approximately 868 acres were retained by the Air Force as Homestead ARS, and 383 acres have been subsequently transferred to other entities for their use. An additional 30 acres are also expected to be retained, and 26 acres are under consideration for other transfer. Currently, Homestead ARS supports aircraft operations by the Air Force Reserve Command, Florida Air National Guard, and U.S. Customs Service. Fighter F-16 aircraft like the one pictured above are based at Homestead ARS.



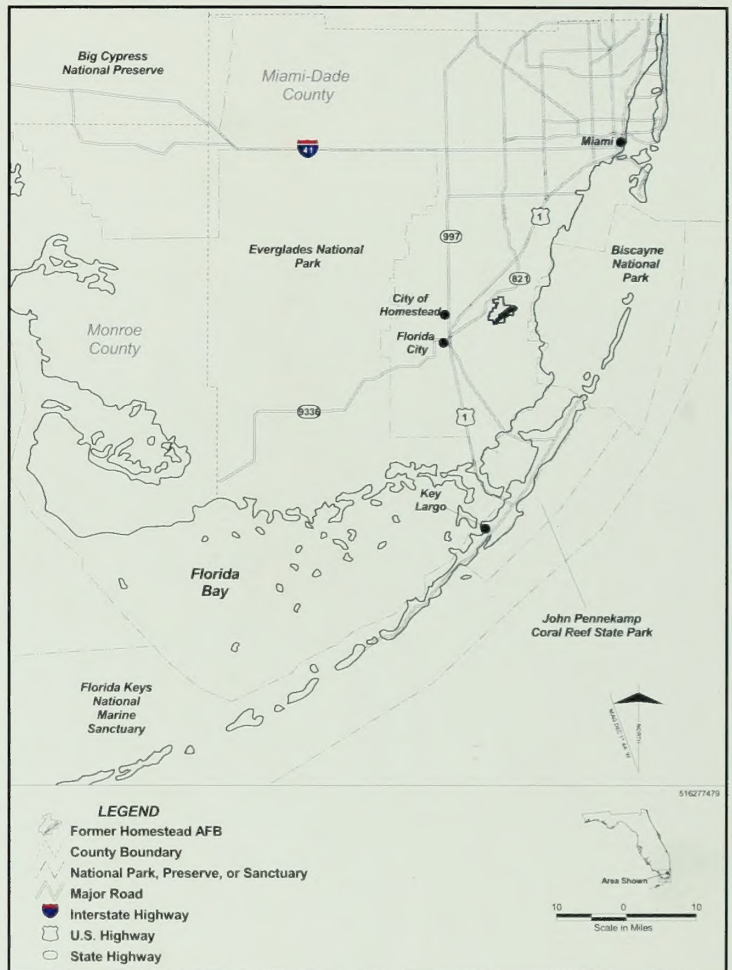


## Purpose and Need for Disposal of Air Force Land

The underlying purpose for the action described in the SEIS is to fulfill the requirement of disposing of property determined to be excess to military needs. The Air Force has determined that 1,632 acres at former Homestead AFB are excess to its needs and surplus to the needs of the federal government. The Air Force seeks to dispose of this surplus property in a manner that supports local community plans for economic revitalization of south Florida and protects Biscayne Bay and the nearby national parks. A disposal must also be compatible with continuing the existing military and law enforcement missions.

In accordance with the Defense Base Closure and Realignment Act, Miami-Dade County became the Local Redevelopment Authority responsible for formulating a reuse plan for the former base property.

The Proposed Action reflects the Local Redevelopment Authority's reuse plan. The plan to convert the former base into a commercial airport was developed by Miami-Dade County in 1993-94, and the county has agreed to various modifications since then.



**Location of Former Homestead AFB**



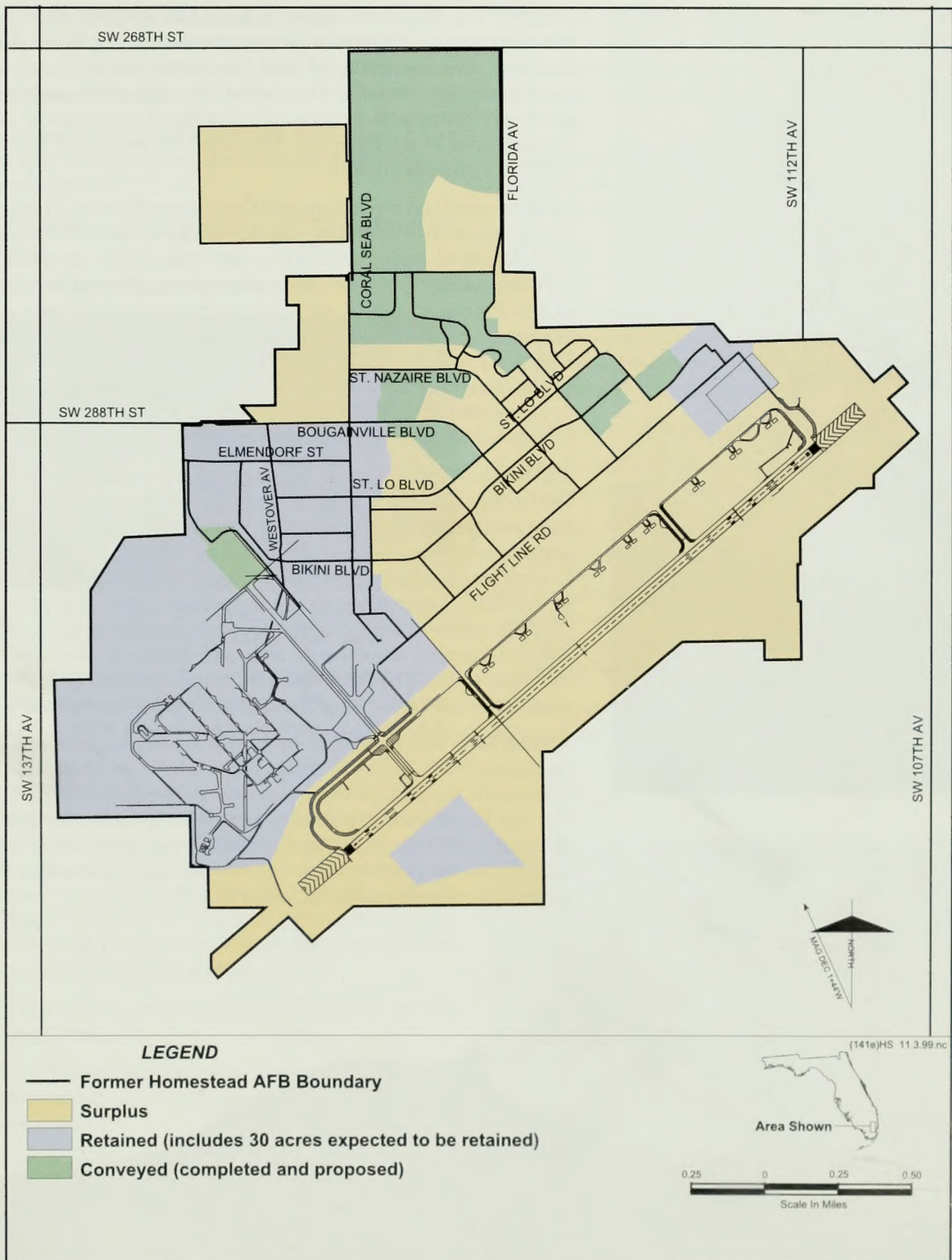
The Proposed Action is to transfer the 1,632 acres of surplus property at former Homestead AFB, including the runway, to Miami-Dade County for use as a commercial airport.

The regional map above shows where former Homestead AFB is located. Most of the effects of reuse of Homestead AFB are expected to be in south Miami-Dade County, south of Eureka Drive. The SEIS focuses on this area of south Florida.

The property status of former Homestead AFB is depicted on the map on the adjacent page.



## Existing Property Status at Former Homestead Air Force Base





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## The Environmental Process for this SEIS



In 1994, the Air Force issued a Final Environmental Impact Statement on the disposal of former Homestead Air Force Base. In 1996, the Secretary of the Air Force began receiving correspondence from the Everglades Coalition, an organization of 15 environmental groups, about alleged inaccuracies and inadequacies in the Final EIS. The Coalition requested that the Air Force prepare an SEIS.

Under Council on Environmental Quality regulations, an agency shall prepare an SEIS if (1) the agency makes substantial changes to a proposed action relevant to environmental concerns, or (2) there are significant new circumstances or information related to the Proposed Action or its impacts. An agency may also prepare an SEIS whenever it determines that the purposes of the National Environmental Policy Act would be furthered by doing so. In December 1997, the Air Force and FAA determined that development of a commercial airport at former Homestead AFB warranted further study and began preparation of this SEIS.

The focus of the SEIS is to provide relevant information on the reasonably foreseeable environmental consequences stemming from federal decisions concerning the disposal of the remaining surplus property at former Homestead AFB. The Miami-Dade County proposal for a commercial airport is the Proposed Action in the SEIS. Alternatives to the Proposed Action addressed in the SEIS involve conveying the property to other entities, other uses, or keeping the runway area and retaining properties in caretaker status. The Proposed Action and alternatives and their environmental consequences are described in this summary.

A Draft SEIS was published for public review and comment in December 1999. Public hearings were held in south Florida on February 1, 2, and 3, 2000 to receive comments on the Draft SEIS. The Air Force accepted written comments for a 60 day period from January 7 through March 7, 2000. During that time, more than 8,000 comments were submitted. The comments and responses are included in the Final SEIS.





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## Decisions to be Made

This SEIS is being prepared to assist in distinct, interrelated decisions to be made by the two co-lead agencies, the Air Force and FAA. The Air Force decisions will include:

- The entity or entities which will receive the surplus property and the method(s) of property conveyance;
- The terms and conditions, if any, of conveyance; and
- Any other actions to be taken.



The Air Force Base Conversion Agency oversees implementation of the Air Force decisions.

The requirement to dispose of surplus property at former Homestead AFB stems from the Defense Base Closure and Realignment Act (DBCRA) of 1990.

Homestead AFB was on the 1993 list of recommended realignments, which was accepted by the President and forwarded to Congress on July 8, 1993. Since Congress did not disapprove the recommendations within the time period provided under DBCRA, the recommendations were required by law to be implemented. Therefore, the decision to realign Homestead AFB was final.

DBCRA requirements relating to disposal of the property include:

- Environmental restoration of the property as soon as possible with funds made available for such restoration;
- Consideration of the local community's reuse plan before Air Force disposal of the property; and
- Compliance with federal property disposal laws and regulations.

If there is an Air Force decision to transfer the property for use as a civil airport or other use that falls under the jurisdiction of FAA, FAA may make a number of decisions pursuant to the SEIS, including:

- Unconditional approval of an Airport Layout Plan for a one-runway airport at former Homestead AFB.
- Changes in airspace or air route structure that may be needed.
- Construction or modification of air traffic control facilities, terminal radar approach control facilities, or navigational and visual aids to support a one-runway airport.
- Establishment of instrument procedures.
- Approval of operations specifications for air carriers to add service to Homestead.
- Granting of other licenses or approvals that may be required to accomplish reuse of the property.
- Consideration of funding of eligible initial (0–5 years) airport development under the Airport Improvement Plan or Passenger Facility Charge Program.

The FAA may also approve the Airport Certification Manual and Airport Security Plan.





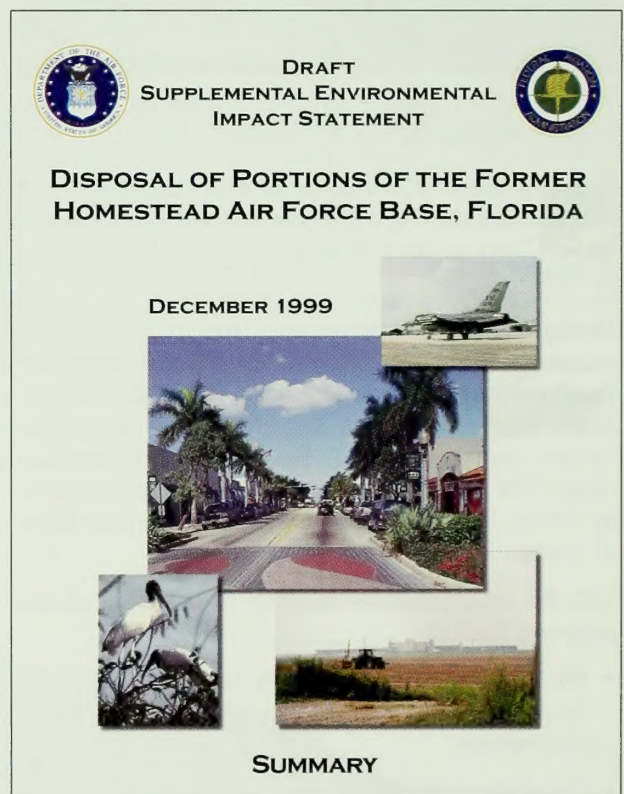
## Changes Between the Draft and Final SEIS

The Final SEIS contains new information and revisions that were added in response to the comments submitted during the 60 day public comment period on the Draft SEIS. One of the comments was a new reuse proposal submitted jointly by Collier Resources Company and the Hoover Environmental Group. This new plan is apparently intended to replace both the original Collier proposal and the original Hoover plan analyzed in the Draft SEIS. Those original plans also remain in the Final SEIS as a basis for comparison and to retain an analysis of the full range of reuse possibilities. In addition to those plans, the property might also be transferred to Miami-Dade County for similar mixed-use redevelopment.

Other variations of the alternatives analyzed in the SEIS are also possible. For example, elements of the Proposed Action and the Mixed Use alternative might possibly be combined. The Air Force could decide to retain the airfield and convey the remaining surplus property to the county and allow limited commercial aircraft use of the airfield (called "joint use").

Some other changes are:

- More information has been added on sensitive species, marine mammals, migratory birds, noise effects on wildlife, potential aircraft and spacecraft accidents, essential fish habitat, and habitat fragmentation due to secondary development.
- FAA's evaluation concerning the applicaiton of Section 4(f) of the Department of Transportation Act was completed.
- The Final SEIS provides additional possible mitigation measures.
- Additional information is provided about aviation growth and airport capacity in south Florida.
- The draft Wyle Research Report on *The Soundscape in South Florida National Parks* was replaced with a final report, and FAA's review of the report has been added.
- Some commentors indicated that unemployment rates in Miami-Dade County and the Homestead area had declined substantially in the last couple years. The Final SEIS incorporates more recent unemployment information.
- The Final SEIS includes the findings of a risk analysis performed by Florida Power and Light Company and reviewed and approved by the Nuclear Regulatory Commission for Turkey Point Nuclear Power Plant.
- More analysis is provided of impacts on South Florida Water Management District lands.
- Updated information has been added on the ongoing Feasibility Study of Military Canal.
- The Water Resources analysis includes corrected information on water quality standards, results of recent studies of Military Canal, and a clearer discussion of impacts.





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## Identification of the Preferred Alternatives

Lead agencies, in this case the Air Force and FAA, are required by regulation to identify their preferred alternative in the final environmental impact statement. The identification of a preferred alternative is a required disclosure of the lead agencies' present preferences, but the agencies have not made any final decisions, and all alternatives will be considered.

The SEIS has examined four alternatives: the Proposed Action, the Commercial Spaceport, Mixed Use, and No Action. Of those, the Commercial Spaceport would require lengthy additional planning and analysis, and the No Action alternative is not consistent with the basic goal of economic redevelopment. By contrast, the Proposed Action and the Mixed Use alternative, especially in the form of the Collier-Hoover proposal, are backed by proponents capable of implementing them in the near term, and both could bring substantial economic redevelopment to the local area. The Air Force does not consider the potential environmental impacts of either of those alternatives to be disqualifying. Therefore, the Air Force prefers the Proposed Action and Mixed Use alternatives and believes that it could implement either one, or parts of one, consistent with its stated goals.

The Air Force also has a preference for disposing of the surplus property to Miami-Dade County. Base closure policies of the Congress and of DOD normally favor disposal to the Local Redevelopment Authority. Either of the two preferred alternatives could be implemented in whole or in part by disposal to the LRA.



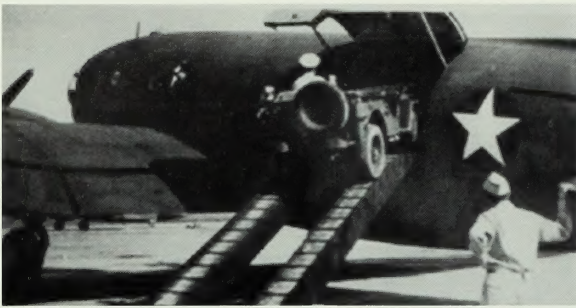
The FAA has a stronger preference for the commercial airport proposal because it would provide needed additional airport capacity for south Florida. The FAA believes that the commercial airport proposal can include appropriate environmental mitigation for the surrounding community, Biscayne Bay, and the national parks.

The cooperating agencies have identified the alternative they consider to be preferred and most in keeping with their missions and responsibilities. The Department of the Interior (the agency of which the National Park Service and U.S. Fish and Wildlife Service are a part) has identified the Collier-Hoover proposal as its preferred alternative. The U.S. Environmental Protection Agency identified the Mixed Use alternative as its preferred alternative.

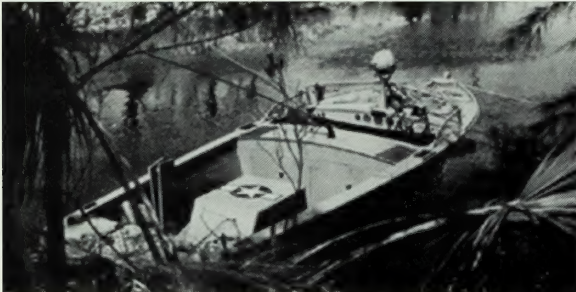




## History of Former Homestead Air Force Base



The site of former Homestead AFB was first developed in the 1930s as an airfield for Pan American Air Ferries, Inc. In 1942, the airfield was deeded to the U.S. government and activated as Homestead Army Air Field to provide training for C-54, C-87, and C-46 aircrews. The training included transport of vehicles, as depicted in the first photograph to the left. An Air Force rescue boat used Military Canal, shown in the second photograph.

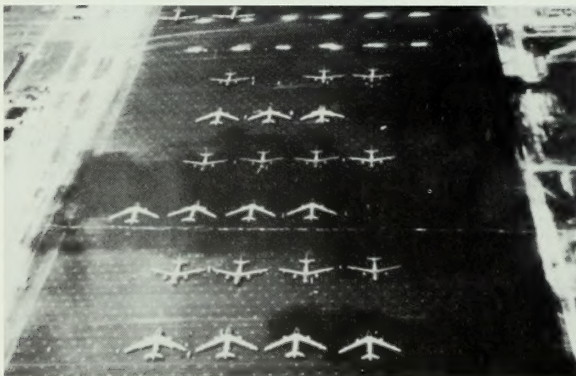


After a hurricane caused major damage in 1945, the base was placed on inactive status and the property transferred to Dade County.

The Air Force reacquired and expanded the base in 1953. In 1955, the base was reactivated as a Strategic Air Command installation and was home to the 823<sup>rd</sup> Air Division, which flew B-47s and later B-52s. These bombers and other aircraft line the Homestead AFB apron in the fourth photo.



Homestead AFB played a prominent role during the Cuban Missile Crisis. When the Soviet Union placed surface-to-surface missiles in Cuba, Homestead became the center for military staging and force build-up. Aircraft were parked wing tip to wing tip on the ramp. The Army deployed large numbers of troops that camped on any open grass areas on the base. After the crisis, the base returned to normal operations. The 31<sup>st</sup> Tactical Training Wing, with its F-100 aircraft like the one pictured at lower left, was assigned and deployed to Homestead AFB in 1962.



From 1966-1985, the 31<sup>st</sup> trained the majority of Air Force F-4 pilots. The combination of large over-water ranges, Avon Park bombing range, and superb flying weather made Homestead AFB an ideal location for Air Force flying operations. In 1968, Tactical Air Command, now Air Combat Command, assumed control of the base, with the 31<sup>st</sup> Tactical Training Wing as the host unit. In 1985, the F-4s were replaced with F-16s, and the unit once again became a Tactical Fighter Wing.



From 1986 to 1992, the 31<sup>st</sup> Tactical Fighter Wing received many awards in both the operations and support areas. Pilots won several flying competitions, and the support squadrons won several national competitions. Homestead AFB was known as a great assignment, with a critical mission, high morale, strong community support, and a beautiful place to live and work.

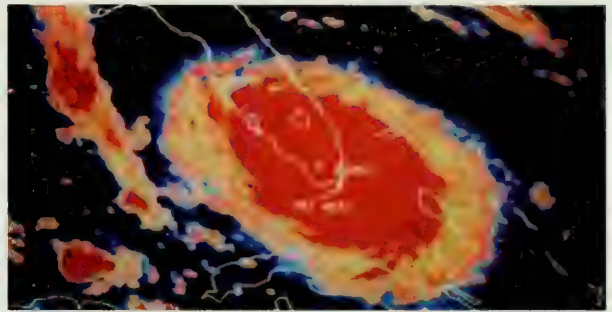


## The Effects of Hurricane Andrew on Homestead Air Force Base

Most of the facilities on Homestead AFB were destroyed by Hurricane Andrew in 1992. These photographs show some of the extensive damage to aircraft and the infrastructure.

When the base was active, it included air traffic control facilities, aircraft hangars, a number of training and maintenance facilities, weather facilities, air freight terminals, radar/aircraft guidance systems, and helicopter operations facilities. An estimated 46 of the 82 aviation support facilities received greater than 50 percent damage from Hurricane Andrew.

Industrial land uses included numerous utility and maintenance facilities. According to the damage assessment, 37 of the base's 151 industrial facilities were damaged by Hurricane Andrew. Institutional (medical) facilities included the former base hospital and pharmacy, which were more than 50 percent damaged by Hurricane Andrew. Commercial land uses consisted of administrative and community type facilities. Twenty-six of the 40 commercial structures were greater than 50 percent damaged. All of the residential structures were damaged by the hurricane.





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## Retained and Previously Conveyed Property

Former Homestead AFB is located 4 miles northeast of the City of Homestead and approximately 1.5 miles inland from Biscayne Bay. In 1990, airfield land uses on the base included the runway, taxiways, parking aprons, hot cargo pad, navigational aids, and helicopter landing pads.

When the base was active, it included air traffic control facilities, aircraft hangars, a number of training and maintenance facilities, weather facilities, air freight terminals, radar/aircraft guidance systems, and helicopter operations facilities.

The retained property at former Homestead AFB is being used to support military activities of the Air Force Reserve Command, Florida Air National Guard, and Army Air Force Exchange Service Base Exchange. Air Force Reserve F-16 aircraft based at Homestead ARS have an "FM" designation on their tails. The Air Force Reserve Command cantonment includes a variety of mission support, aviation, administrative, and community service functions. An additional 30 acres that are within a safety zone are expected to be retained by the Air Force. Land use in that area is restricted by safety criteria.

The previously conveyed property is being used for the U.S. Customs drug interdiction program, a Job Corps youth program, a homeless residential and therapy center, a regional park, and a bank. A parcel conveyed to the credit union is now being used as a warehouse by the Job Corps. Another 26 acres are proposed to be transferred to the School Board of Miami-Dade County for an aircraft maintenance school.

Redevelopment for the Job Corps program and Homeless Trust Center has occurred over the past

two years involving some demolition, renovation, and new construction. The regional park will be developed as funding is available. Removal of existing infrastructure and site preparation is ongoing.

By 2000, employment for the military and other functions on the retained and previously conveyed property is estimated at about 1,500 full-time equivalent jobs. This accounts for part-time reservist jobs, full-time military and civilian personnel, and estimated job levels for the previously conveyed property and ongoing reuse. There could be a small number of additional jobs (assumed to be about 100) in the future.





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## Current Use of Homestead Air Reserve Station



Currently, a large portion of the former base remains open or vacant land, with the exception of the cantonment area. The cantonment is in the western part of the former base.

The Air Reserve cantonment has undergone considerable reconstruction since Hurricane Andrew. This area behind the gate contains newly constructed administration, maintenance, and training facilities. There is a fenced munitions area south of the runway and another cantonment on the northeast end of the runway used as an alert

area by the Florida Air National Guard. Military users currently plan no major future development.

There are approximately 20,000 annual military and government aircraft operations at Homestead ARS. An operation can be a takeoff, a landing, or a "closed pattern," when pilots train by flying around the airfield. About two-thirds of the operations are conducted by Air Force Reserve F-16 aircraft. The Florida Air National Guard F-15 aircraft have an active alert mission, which requires readiness to respond immediately to emergency situations.

The military and government pilots fly specified flight tracks for arrivals, departures, and closed patterns. Nearly all operations occur on weekdays, in an east flow direction, and during daytime hours.





## Affected Environment

Following Hurricane Andrew and the realignment of Homestead AFB, the public leadership and business community of south Miami-Dade County initiated plans to recover from the deleterious effects that the hurricane and base downsizing had on the local economy. The Mayor of Miami-Dade County established an Economic Summit to address South Miami-Dade Revitalization. A 1994 workshop held to explore actions that needed to be taken to ensure the south county's economic future identified three priorities:

- Developing the former Homestead AFB;
- Sustaining agriculture; and
- Expanding tourism.

Hurricane Andrew's damage to the economy had an effect on population distribution within Miami-Dade County. Total population in south Miami-Dade County, south of Eureka Drive, declined by over 100,000 between 1992 and 1993, after Hurricane Andrew. In the same time frame, population grew by nearly 44,000 in northern Miami-Dade County. Countywide, population declined by more than 57,000 residents. Most of the population increase in the northern part of the county was from residents who relocated from the southern part.

The military-related population in Miami-Dade County at the time of Hurricane Andrew included 11,839 permanent party military personnel and their dependents, 1,024 appropriated fund personnel, 416 non-appropriated fund civilian personnel, and approximately 21,000 military retirees and their dependents. Nearly 85 percent of this population resided in the southern portion of Miami-Dade County. Between 1991 and 1997, the total personnel assigned to Homestead AFB declined from 8,714 to 1,961. Currently, there are about 1,040 part-time and 570 full-time military and civilian personnel at Homestead ARS.



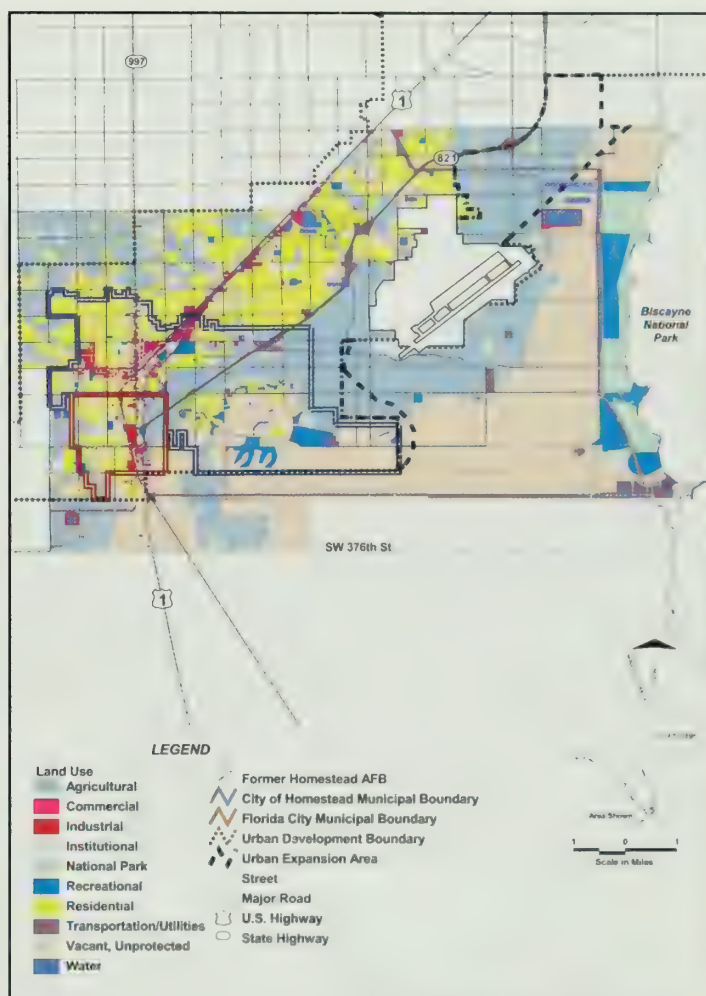


## Existing Land Use Near the Former Base

Miami-Dade County identifies an Urban Development Boundary (UDB) within which most development is confined. Development outside this boundary is highly restricted, and supporting infrastructure is very limited. Residential development outside this boundary is restricted to one dwelling unit per 5 acres. The county also identifies an Urban Expansion Area to be opened to potential expansion of the UDB as necessary after 2000.

Most of the land outside the UDB is in national parks, consists of water, or is undeveloped. Excluding the lands that are within the national parks or are protected open space, the principal land use is agriculture. Most residential, commercial, and industrial development occurs within the UDB to the west and north of former Homestead AFB and along U.S. Highway 1. The highest densities of residential and commercial land development occur within the boundaries of the City of Homestead and Florida City.

Two new facilities are the Miami-Dade-Homestead Motorsports Complex, a state-of-the-art racing facility, and the Homestead Sports Complex. The Motorsports Complex (pictured below) is located on 343 acres in southeast Homestead and contains seating for over 80,000 spectators. The 186 acre Sports Complex seats 6,500 but can be expanded to seat 9,000.



Land Use in the Vicinity of Former Homestead AFB





## Nearby Communities: The City of Homestead



The City of Homestead mural depicts the history and present economy of the region. The city serves as the center of Miami-Dade County's agricultural industry. It provides cultural, business, and economic opportunities for the area. Surrounded on the north, west, and east by unincorporated Miami-Dade County and on the south by Florida City, the City of Homestead comprises approximately 13 square miles. The historic district has become the focus of local shops that cater to both residents and tourists.

Since Hurricane Andrew, approximately 487 acres of previously undeveloped land have been developed for primarily residential and commercial land uses. The city also annexed approximately 1,400 acres to the east.





## Nearby Communities: Florida City

Florida City comprises approximately 3.2 square miles of land and has about 6,000 residents. Florida City is approximately 5 miles southwest of former Homestead AFB and is south of the City of Homestead. Land west of the city is primarily open or in agricultural use, with some single-family residential development. The local and regional economy has started to rebound from the economic losses of Hurricane Andrew and the realignment of Homestead AFB.

East of the city is mainly undeveloped land with few roadways or facilities. Little development has occurred to the south, with the exception of a trailer park that borders the city limits. Florida City has an historic agriculture industry that included modern (for their time) tractors, as pictured bottom left. The undeveloped areas near U.S. Highway 1 and Florida's Turnpike are designated for commercial and industrial uses. A large percentage of the undeveloped land is environmentally sensitive wetlands that are not suitable for development.

Residential and commercial growth in the past few years has been substantial. The city is presently pursuing the annexation of adjacent unincorporated areas east and west of the current city limits.





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## Nearby National Parks: Biscayne National Park

The mission of the National Park Service is "...to promote and regulate the use of the...national parks...to conserve the scenery and the natural and historic objects and the wildlife therein...and to provide the enjoyment of the same in such a manner...as will leave them unimpaired for the enjoyment of future generations." (National Park Service Organic Act)

Biscayne National Park was established as a National Monument in 1968 and became a National Park in 1980. There are many values associated with the park. It contains a wide variety of natural, cultural, and scenic water and land areas. The authorizing legislation for Biscayne National Park specifically identifies it as "a rare combination of terrestrial, marine, and amphibious life in a tropical setting of great natural beauty."

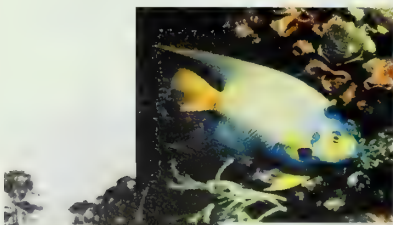
The park contains natural and cultural features, including its wildlife, plants, waters, geologic features, historic buildings and monuments, and archeological sites. It also has intangible qualities, including natural quiet, solitude, space, scenery, a sense of history, sounds of nature, and clear night skies.

Because 95 percent of the park is water, the most definitive landscape includes water and sky. Very little beachfront exists, so most views are from the water or the keys. Miami can be seen from the northern area of the park and from Boca Chita Key.



The Turkey Point Nuclear Power Plant and the Miami-Dade County landfill are dominant features from many areas of the bay.

Biscayne National Park has four distinct areas: Biscayne Bay, the upper Florida Keys, the underwater reefs, and the mainland mangroves. The bay area provides critical marine habitat and allows for views of very clear, crystal blue water. The upper Florida Keys are small islands filled with vegetation and wildlife. These islands are a focal point and the dominant landform in the bay. The underwater reefs are teeming with coral and colorful fish. The mangroves are unique vegetation recognized by their twisted root system growing along the coastal shoreline.





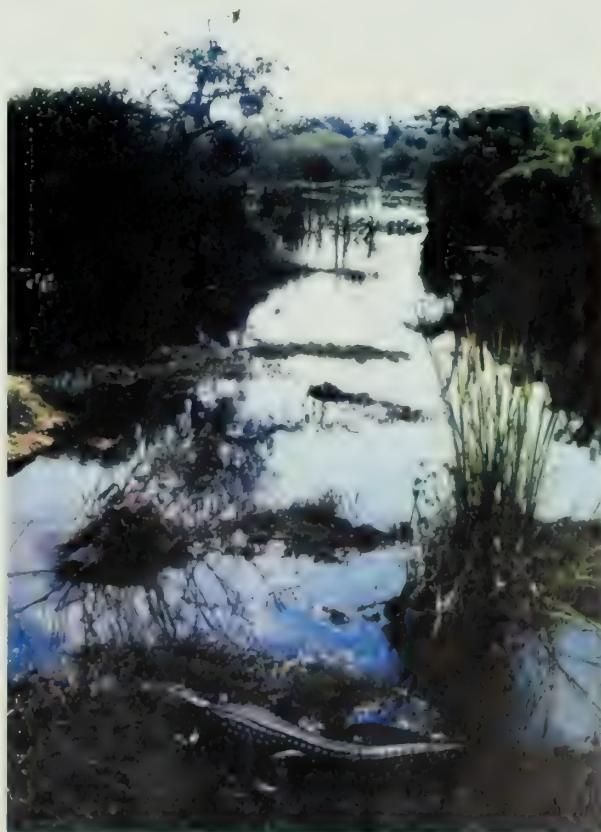
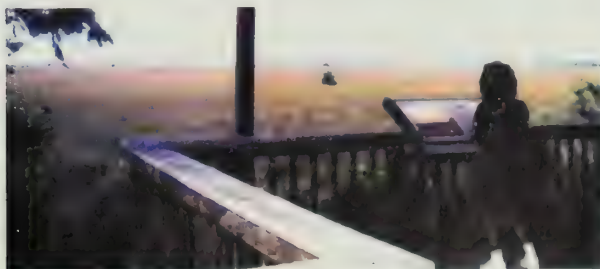
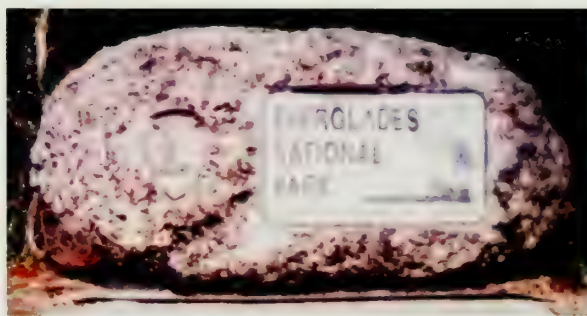
## Nearby National Parks: Everglades National Park

Everglades National Park is the largest remaining sub-tropical wilderness in the continental United States and is the third largest park in the United States, outside Alaska. The park has extensive fresh and saltwater areas, open Everglades prairies, and mangrove forests. Abundant wildlife includes rare and colorful birds, and the park is the only place in the world where alligators and crocodiles exist side by side.

The Everglades are a low, flat plain, shaped by the action of water and weather. In the summer wet season, it is a wide, grassy river. In the winter season the edges of the sloughs are a dry grassland. Though Everglades National Park is often characterized as a freshwater marsh, several very distinct habitats exist within its boundaries.

As described by Marjory Stoneman Douglas in *The Everglades: River of Grass*, "Nothing anywhere else is like them; their vast glittering openness, wider than the enormous visible round of the horizon, the racing free saltiness and sweetness of the their massive winds, under the dazzling blue heights of space.... The miracle of the light pours over the green and brown expanse of saw grass and of water, shining and slow-moving below, the grass and water that is the meaning and the central fact of the Everglades of Florida."

Everglades National Park includes general outdoor recreation areas with developed facilities and access roads, natural environmental areas around the major developments, waters along the Gulf coast and Florida Bay, and inland water routes. Outstanding natural areas include the habitat and rookeries of endangered animals such as crocodile, sea turtle, and wood stork. Other outstanding natural areas are the mud and grassbanks of Florida Bay, part of the Ten Thousand Islands, and the Shark River Slough. Much of the undeveloped lands are classified as primitive. Significant historic sites, Indian shell mounds, and an Indian cemetery are also found in Everglades National Park.





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## Environment in the Vicinity of the Former Base

Agriculture has historically been the dominant land use in the vicinity of former Homestead AFB. In 1994, 32 percent of the land between Eureka Drive and the Miami-Dade/Monroe County border (excluding the national parks) was agricultural.

Over 80 percent of this agricultural land is outside the Urban Development Boundary. Agricultural land is mostly located between urbanized areas within the Urban Development Boundary and Everglades National Park and, to a lesser extent, Biscayne National Park.

Rural areas of Miami-Dade County are typified by wide, flat fields of row crops (tomatoes, beans, potatoes, and squash) flanked by stands of tall trees along the public rights-of-way. Other agricultural enterprises are also common, particularly tropical

fruit orchards and nurseries, such as the one pictured below. Structures within rural areas are mainly farm homes and outbuildings including large storage structures and sheds. Single family homes are one to two stories surrounded by yards, gardens, and outbuildings.

The City of Homestead and the nearby Redland agricultural district provide historic character to the region. Downtown Homestead is characterized by its historic business district. The Redland contains a number of historic buildings that give it an appearance from another era. Quaint, traditionally detailed wood frame houses, churches, and stores line the streets, with decorative front porches and gabled and hipped roofs.



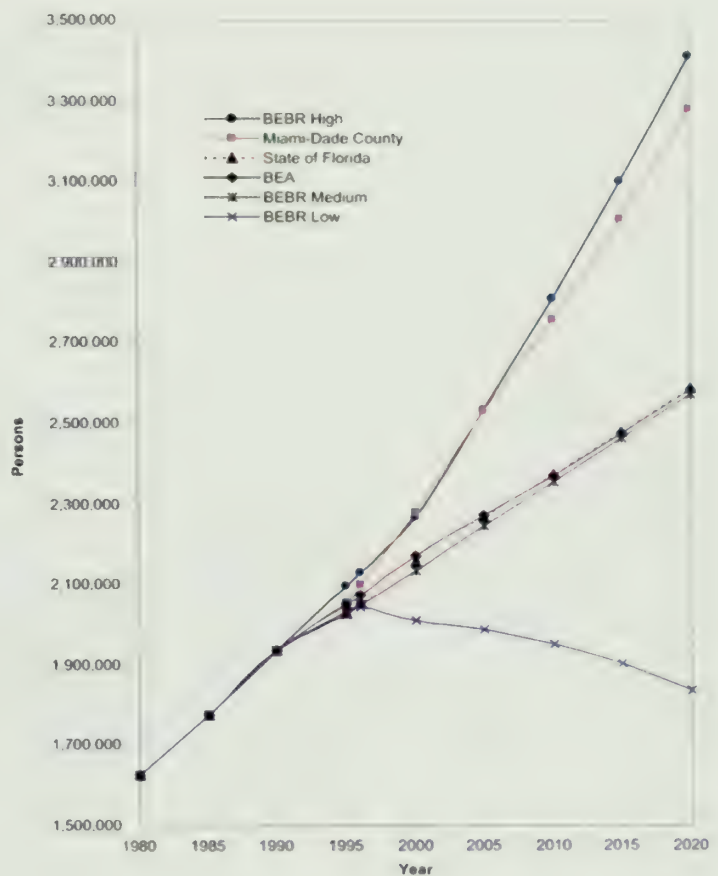


## Environment in the Vicinity of the Former Base

The population of southern Florida has been growing and is projected to continue to grow. Agencies that forecast population growth for Miami-Dade County include the federal Bureau of Economic Analysis (BEA), the University of Florida's Bureau of Economic and Business Research (BEBR), the State of Florida, and Miami-Dade County government. As the graph shows, they have predicted various levels of growth. Miami-Dade County has forecast a very high level of growth over the next 20 years, although the county is revising its projections to be more modest.

Land use patterns in the area surrounding former Homestead AFB are expected to change between now and 2015 to accommodate this growth, regardless of how the former base property is reused. It is estimated that meeting the increased demand for development will result in a decrease of approximately 8,500 acres (about 9 percent) of agricultural and vacant land remaining in south Miami-Dade County between 1995 and 2015.

In the future, the dominant land use is expected to continue to be agriculture, but other uses will increase. Residential land uses are anticipated to cover approximately 12 percent of the land south of Eureka Drive by 2015, compared to about 8 percent in 1994.



Population Forecasts for Miami-Dade County





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## Proposed Action: Homestead Regional Airport

The Proposed Action is to transfer the remaining surplus property at former Homestead AFB, about 1,632 acres including the airfield, to Miami-Dade County for the development of a one-runway commercial airport, designated Homestead Regional Airport. Miami-Dade County has a lease agreement with Homestead Air Base Developers, Inc., to develop and operate an airport at former Homestead AFB. The proposed three-letter designation of the airport would be HST.

The Proposed Action incorporates development and operations outlined in the *Final Homestead Air Force Base Feasibility Study Airport Master Plan* (1994). Homestead Regional Airport would function primarily for scheduled air passenger services with some unscheduled passenger charters, air freight, air cargo, and general aviation operations.

Miami-Dade County's proposal is based on a recognized civil aviation need in south Florida for additional commercial service capacity. The runway at Homestead can physically accommodate all types of aircraft in the civil fleet, and it must remain active in the future in any case to serve military and U.S. Customs aircraft. Given the modest numbers of military/government aircraft, Miami-Dade County's proposal would match the circumstances of an under-utilized runway with a future need for additional commercial runway capacity.



The surplus property proposed for transfer includes the airfield and its runway (about 915 acres) and about 327 acres expected to be used for aviation support activities. Initial development in this area is estimated to include about 340,000 square feet of new facilities and 420,000 square feet of reused facilities. Further expansion of passenger terminals and cargo and maintenance hangars could result in about 1.4 million square feet of new facilities by 2015. There could be an estimated total of 2.4 million square feet of buildings by full buildout.

About 339 acres are planned to be developed for airport-related and other industrial and commercial businesses. Plans call for commercial development, principally between 2005 and 2015, resulting in about 1.6 million square feet of facilities by 2015. Industrial development would likely be similar. This land could accommodate about 3.8 million square feet of new commercial and industrial facilities at full buildout.

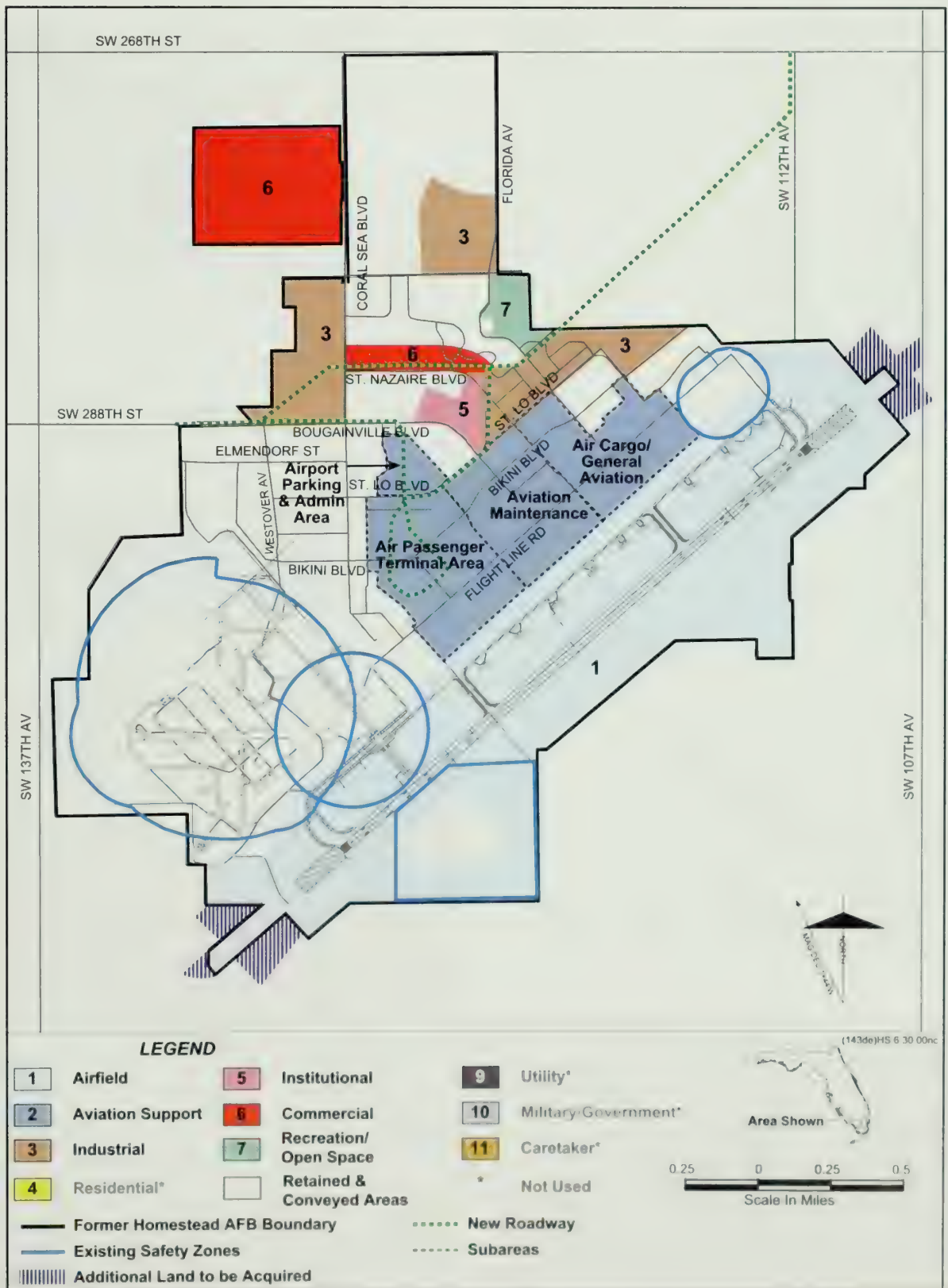
A 24 acre vacant area east of the existing Job Corps Center is identified for educational, local government, or other institutional use. About 28 acres of open space would remain around Mystic Lake. The lake would retain stormwater and could be developed for informal public recreation.

The planned development also includes roadway and access improvements and construction of new parking areas for employees, passengers, and customers.





# Land Use at the Proposed Homestead Regional Airport





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## Proposed Action: Homestead Regional Airport

Homestead Regional Airport would be dual-use with continued military and government operations. The airport could have over 150,000 military, commercial, and general aviation air operations by 2015. Existing flight tracks and local closed patterns would continue to be used for military and government aircraft. New flight paths are being defined for civil operations at Homestead Regional Airport. Routes in and out of the Miami area would use established navigational points. At maximum use of the single runway, there could be about 231,000 air operations, with slightly over half estimated to be commercial passenger services. The majority of airport operations (over 90 percent) are anticipated to occur between 7:00 a.m. and 10:00 p.m. The airport could move about 1.3 million passengers annually by 2015 and about 3.9 million annually at maximum use.

Homestead Regional Airport is estimated to generate about 12,800 jobs by 2015 and up to 17,500 jobs on the site at full buildout (not including construction jobs). A new 200-room hotel could be constructed between 2005 and 2015 as passenger levels increase. This could generate an average continuous transient population of about 300 persons by full buildout, adding to an estimated temporary population of 1,210 in lodging on Homestead ARS and at the Job Corps and Homeless Trust Centers.

A successful commercial airport could generate additional airport-related facilities and commercial and industrial business beyond the airport property. "Spillover" activities could include car rental services, hotels, restaurants, fast food establishments, gas stations, avionics and aircraft workshops, offices, and warehouses supporting cargo operators.

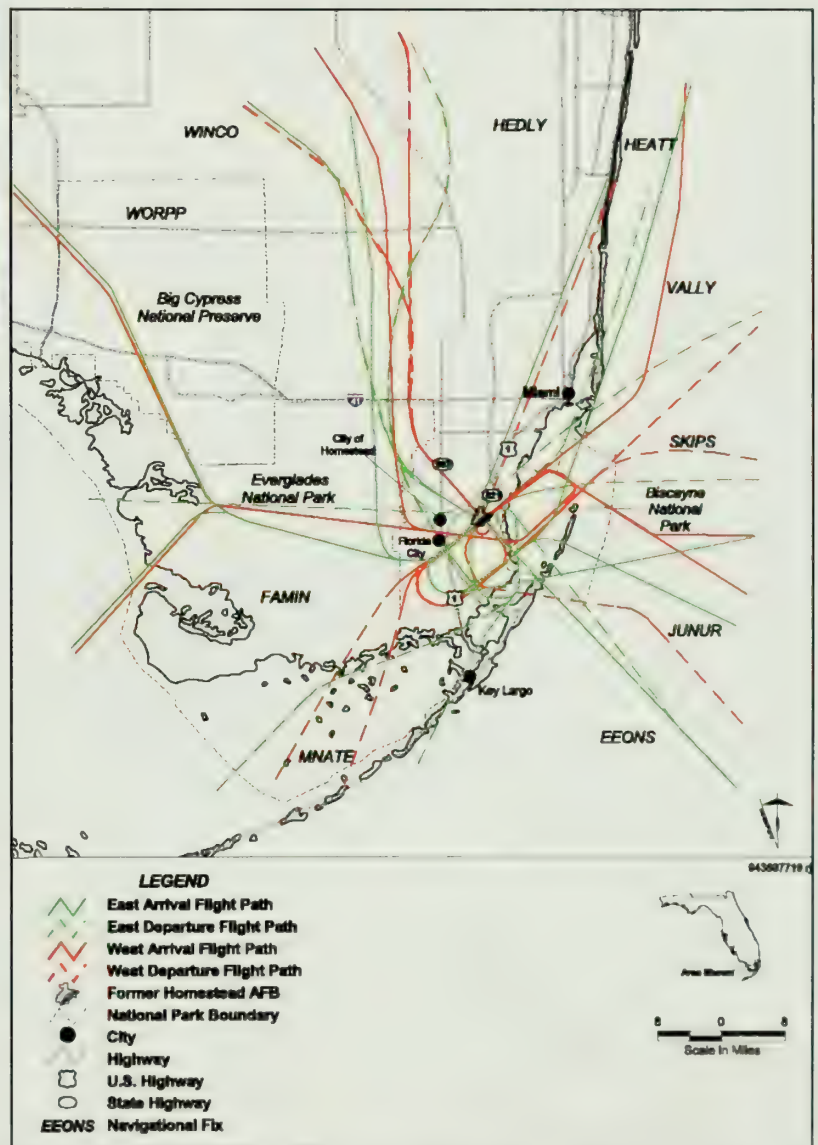
The Proposed Action could also generate about 14,400 off-site jobs by 2015 in south Miami-Dade County, stimulating an additional 2,000 acres of residential, commercial, and industrial development. Workers moving into south Miami-Dade County to take jobs in connection with the airport could increase the population in south Miami-Dade County by about 10,600 residents. At full buildout, an additional 75 acres of off-site parking might be needed, and 150 acres could be needed in the nearby area for a hotel. Off-site employment could increase to 21,000 jobs, and about 15,000 people could migrate into the south county.

Traffic is projected to include 44,600 daily trips to the former base by 2015 and 67,000 by full buildout. The Turnpike interchange at SW 112<sup>th</sup> Avenue (Allapattah Road) would be widened and extended to link up with SW 288<sup>th</sup> through the airport.



## A scenic view of a river flowing through a forested area. The river is calm, reflecting the surrounding trees and sky. On the right bank, there is a dirt path or road leading towards a bridge in the distance. The bridge is a simple wooden structure with a railing. The forest is dense with tall evergreen trees. The sky is overcast and grey.

A number of flight paths have been developed in consultation with FAA air traffic controllers for the Proposed Action. These paths, shown on the map at the right, would be used by civil aircraft flying in and out of Homestead Regional Airport. Military aircraft would continue to use the same flight tracks they use currently.



### Proposed Flight Paths for Homestead Regional Airport





## Commercial Spaceport Alternative

The Commercial Spaceport alternative is in the early stages of definition. Although proposals and expressions of interest were received by the Air Force to use the former base for a spaceport, spacecraft that launch and recover horizontally are only now under development. Therefore, their operational and performance parameters can only be estimated. The estimates used for the SEIS analysis were based on information supplied by companies who are developing horizontal launch vehicles and represent the best information available. An estimate of 480 annual spacecraft operations by 2015 was used for the SEIS. The actual number that might occur is dependent on market demands that could change. In addition, the licensing process and the full range of safety and other requirements for commercial spacecraft are still being formulated by FAA. The SEIS summarizes the current status of the licensing rule making process. The SEIS also addresses combining a spaceport with a limited commercial airport.

Space operations may require additional navigational aids such as a Global Positioning System, but the airfield area, existing runway, taxiways, and ramp areas are not expected to require any major alterations and would continue to be used by existing military and government users.

The core spaceport facilities are assumed to be located in aviation support areas along the flightline (estimated to need about 306 acres). These include specialized facilities where space vehicles, payloads, and some types of fuels could be integrated. Also, the mission management center and the maintenance and fabrication areas would probably be located close to these core functions. Other areas would be used for industrial and commercial activities.

Estimated facilities development includes reusing about 460,000 square feet of existing buildings, mostly in the spaceport area, and construction of almost 750,000 square feet of new facilities by 2005, increasing to about 2.2 million square feet by 2015 and potentially over 3 million square feet at full buildout.

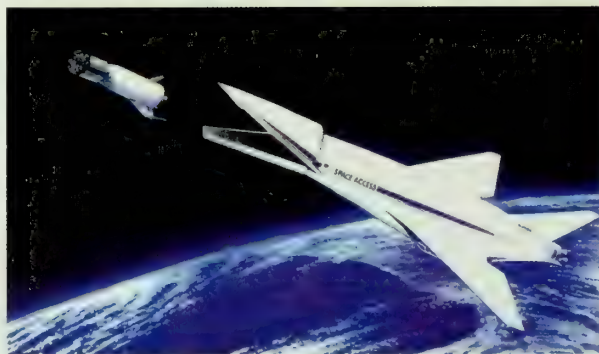
Cryogenic fuels, not typically found on airports, would be stored in large tanks on the site. Because these materials, such as liquid hydrogen and liquid oxygen, pose safety hazards, locations on the southeast side of the airfield would provide the most separation from other operations and facilities. New engine runup facilities may also be located on the south side of the airfield.

The Commercial Spaceport alternative could generate an estimated 5,100 on-site jobs by 2015, not including construction jobs. This could include about 3,000 spaceport-related jobs. At full buildout, there could be about 6,600 jobs. A Commercial Spaceport is expected to generate more high-skilled but fewer total jobs than the proposed commercial passenger airport. Daily vehicular trips for Commercial Spaceport operations are estimated at about 17,000 by 2015 and about 22,500 at full buildout.

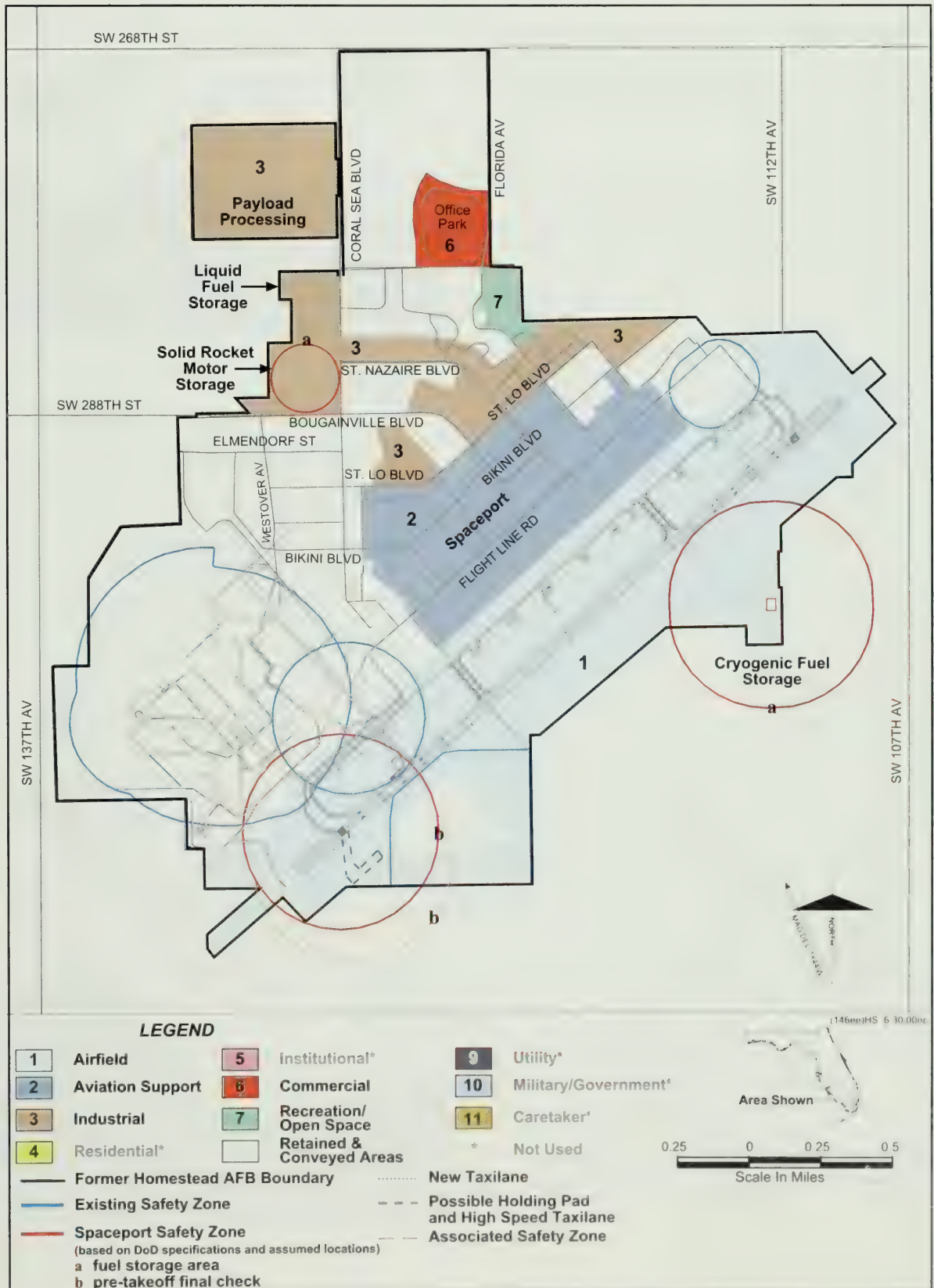
A variety of industries and businesses could be attracted to the area by the impetus of the Commercial Spaceport. The spaceport could generate an estimated 4,900 off-site jobs by 2015, increasing to 6,400 by full buildout. An estimated 1,200 people could move into south Miami-Dade County by 2015 to take jobs at the spaceport. This might create a need for about 500 acres for off-site residential, commercial, and industrial development. At full buildout, population immigration could increase to about 1,500 and off-site development to 650 acres.

It is assumed that the same type of surface water management plan would apply for a spaceport as for the proposed commercial airport, and stormwater retention would be part of the site design.

There is much environmental and economic uncertainty about a Commercial Spaceport. A concept vehicle is illustrated below. Some actions might be needed to protect people and property in surrounding areas. Operational procedures, separation of uses (maybe requiring additional land acquisition or easements), and special barricades and blast protection features might be needed for safety. There could also be safety restrictions in areas under the launch path of space vehicles. All of these requirements would be specified in the terms and conditions of the FAA licenses for site and launch operators.



# Land Use for the Commercial Spaceport Alternative





## Mixed Use Alternative: Market-Driven Development

The Mixed Use alternative focuses on non-aviation reuses. The Air Force would retain the airfield (about 915 acres) for continued military and other government use, but there would be no civil airport use.

Under this alternative, the surplus land could be disposed of in large parcels to a single public or private entity for economic development, or incrementally in smaller parcels as latent market demands, economic opportunities, or future community needs emerge. Four scenarios of a Mixed Use alternative are addressed in the SEIS to capture the spectrum of potential uses and to be able to evaluate a range of potential environmental impacts. The four scenarios are Market-Driven development, the Collier-Hoover proposal, a separate plan submitted by Collier Resources Company, and a separate plan submitted by the Hoover Environmental Group.

### Market-Driven Development

A market study conducted as part of the SEIS indicated a strong future demand for residential land, moderate demand for commercial uses, and a relatively modest demand for industrial property. The level of demand for property will depend partly on how fast the surrounding area grows. The SEIS assumes that population growth in the future will be moderate, but it also assumed that incentives to increase industrial development could increase demand for the surplus property at former Homestead AFB. The Market-Driven scenario includes a mix of residential, commercial, and industrial uses, based on their relative demand in the area and the suitability of the available disposal property for each use.

The Market-Driven development could achieve a high job intensity at full buildout, but possibly not until the middle of the 21st century. On-site jobs are estimated to increase to about 4,400 in 2015 and could reach over 12,000 at full buildout, not including construction jobs. There could be over 1,000 on-site residents by 2015, increasing to 3,400 at full buildout. Traffic associated with these users could increase by about 18,800 average daily trips by 2015 and about 53,000 at full buildout.

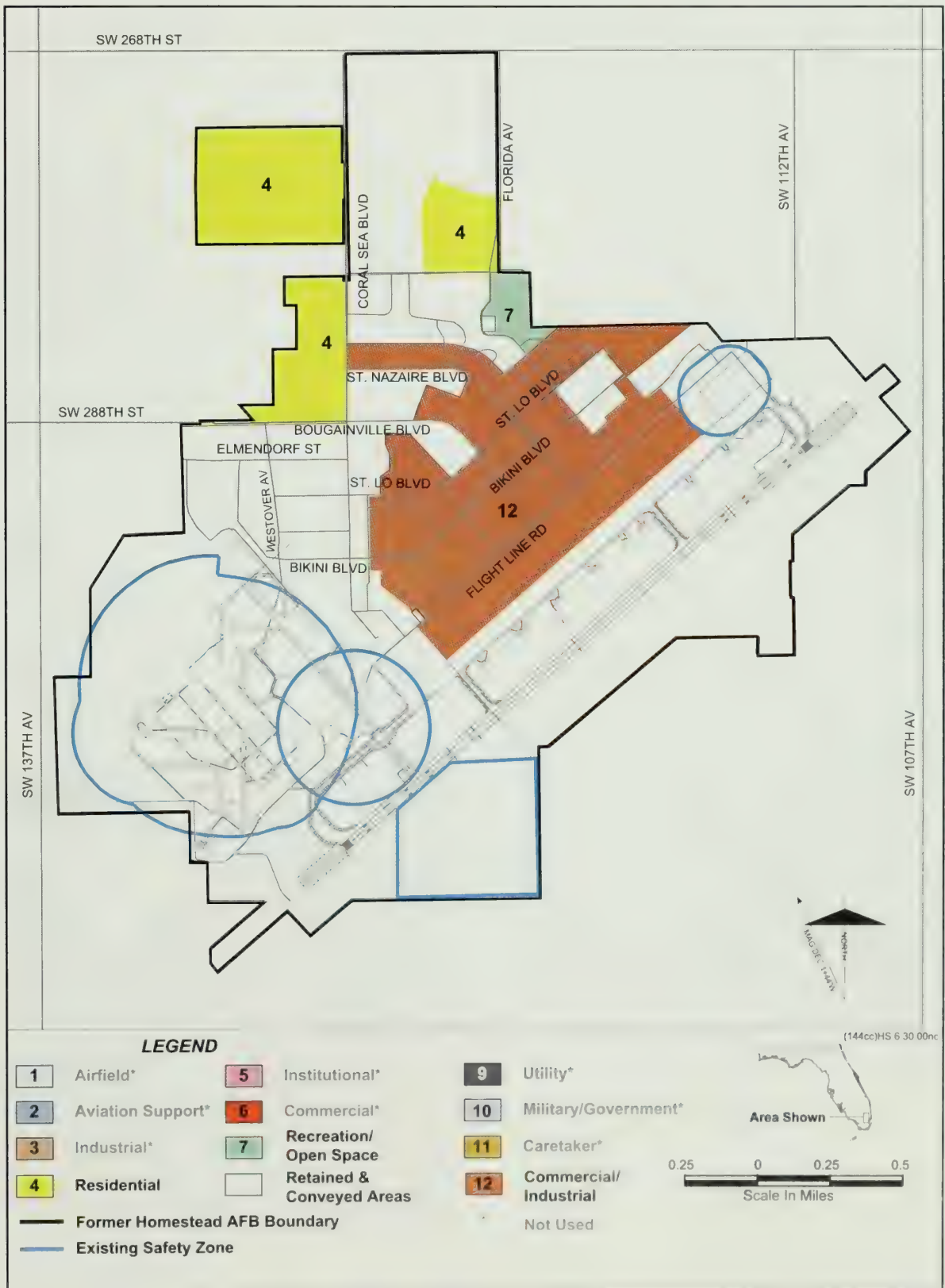


Specific stormwater improvements are not included as part of the Market-Driven development. Property developers would be required to meet standards that are in effect at the time of development. If larger parcels were developed (over 100 acres in size), then stormwater performance standards similar to the Proposed Action would be required by the South Florida Water Management District and Miami-Dade County Department of Environmental Resources Protection. However, no requirements have been assumed for analysis of the Market-Driven development scenario in the SEIS.

The Market-Driven development is estimated to generate almost 4,700 off-site jobs by 2015. The majority of these jobs would be expected to be in south Miami-Dade County. This is estimated to result in potential in-migration of about 1,100 people to south Miami-Dade County. An additional 500 acres or more could be developed for residential, commercial, and industrial use by 2015. Off-site jobs could increase to over 12,400 at full buildout, generating about 2,800 in-migrants and 1,400 acres of off-site development.



# Land Use for Market-Driven Development





## Mixed Use Alternative: Collier-Hoover Proposal

While the Draft SEIS was being prepared, the Air Force received reuse proposals for former Homestead AFB from the Collier Resources Company and the Hoover Environmental Groups. Their plans were included in the Draft SEIS. During the public review period for the Draft SEIS, Collier and Hoover submitted a new, joint proposal, which is addressed in the Final SEIS.

In this joint proposal, Collier Resources Company proposes to exchange Collier family oil and gas rights of equal value in Big Cypress National Preserve for 717 acres of surplus property at former Homestead AFB. The Air Force would retain the 915 acres comprising the airfield for continued military and government use. The Collier-Hoover proposal incorporates many features from both of the original plans, which are described in subsequent pages of this summary. It includes commercial, recreational, business, research, and entertainment uses, combining education and recreation to attract a wide range of tourists and vacations.

The plan features two golf courses woven among commercial and industrial areas. The commercial areas include a world-class aquarium, three hotels, retail/dining establishments, and a water park. The concept of the site is to demonstrate sustainable and environmentally compatible development, highlighting the marine estuarine and wetland ecologies of the region. Lakes and wetlands would provide natural habitat, landscaping, and challenges for the golf courses.

The land use plan includes a 324 acre luxury RV park, 158 acres of commercial use, 142 acres of commercial/industrial use (research and development/office park), 59 acres of recreation, and 9 acres of open space. Almost all existing facilities would be demolished, and an estimated 866,000 square feet of new facilities could be built by 2005, increasing to about 1.8 million by 2015 and almost 3 million at full buildout.

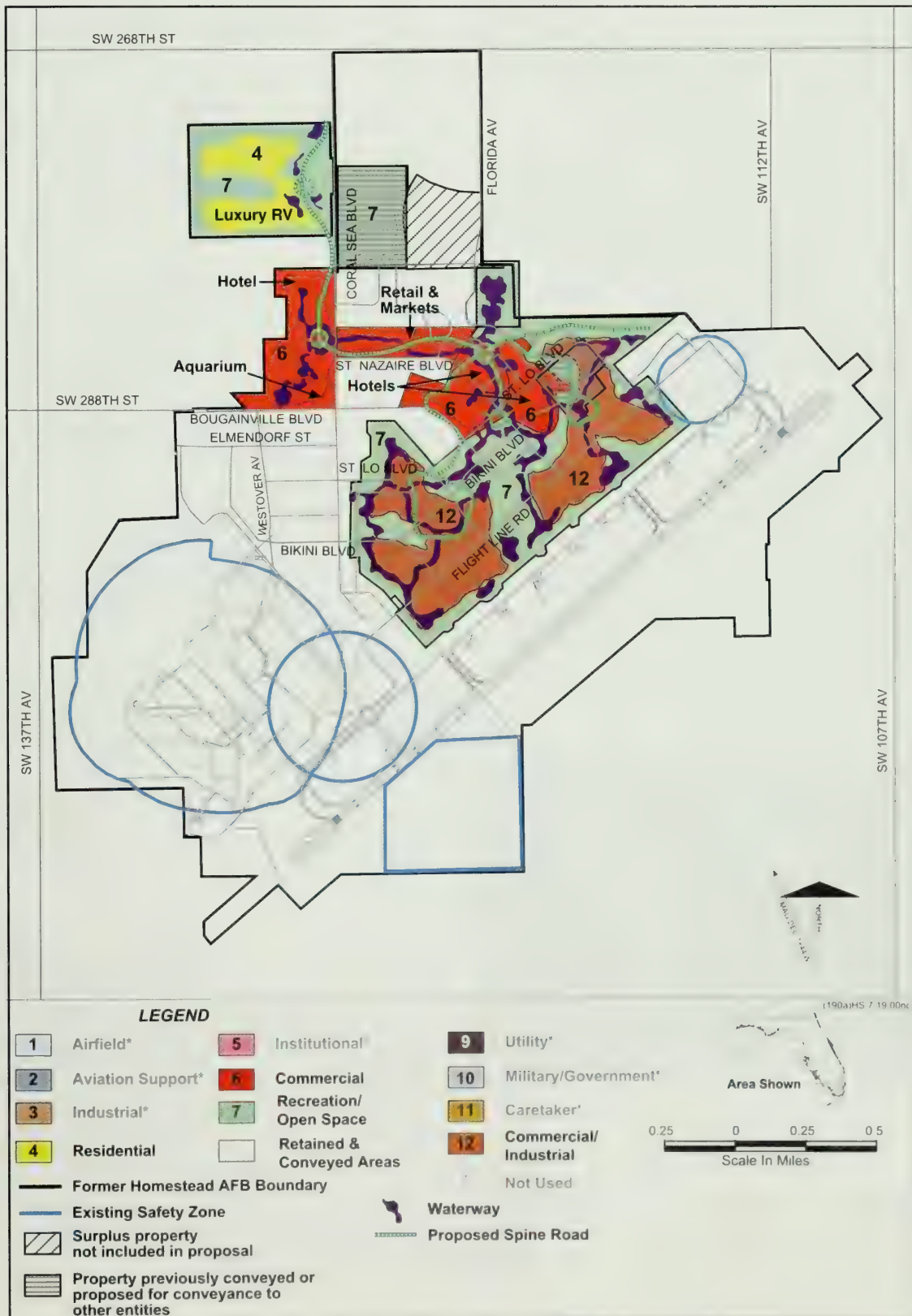
As shown on the facing page, the plan includes about 75 acres of land that has already been transferred or is proposed to be transferred for other uses. The Colliers anticipate exchanging this property for other property of equivalent size either on the former base or elsewhere.

The many lakes and wetlands included in the plan would store stormwater and treated wastewater that could be used to irrigate the golf courses. They would also be designed to meet stormwater management permit requirements. On-site generation of electricity using solar power and recycling are also planned to reduce the need for utilities.

On-site employment with this proposal could reach about 5,400 jobs by 2015 and over 10,000 jobs at full buildout (not including construction jobs). The plan could also generate almost 8,300 additional off-site jobs in south Miami-Dade County by 2015 and 12,000 by full buildout. Some of those would be jobs relocated from the northern part of the county. This is estimated to lead to about 1,400 people moving into the south county by 2015, increasing to 2,500 by full buildout. The additional employment and population is anticipated to create a demand for an estimated 1,700 acres of off-site land for residential, commercial, and industrial development by full buildout, projected to occur around 2020.



# Collier-Hoover Proposal Land Use





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## Mixed Use Alternative: Original Collier Resources Company Proposal

Like the Collier-Hoover proposal, the original proposal from Collier Resources Company involves exchanging oil and gas rights in Big Cypress National Preserve for surplus property (excluding the airfield) at former Homestead AFB.

This proposal provides a comprehensive development of the property, with landscaping, road and bike/pedestrian networks, infrastructure, and buildings to achieve a marketable image and quality. It emphasizes commercial development, recreation, and some light industry. The land use plan is focused on a golf-oriented vacation complex, with a luxury recreational vehicle park, three hotels, and other attractions that would cater to a full range of family or executive traveler interests. These include a water park, movie theatre, retail areas, and possibly an aquarium.

The Collier proposal includes 338 acres of recreation, 186 acres of commercial, 111 acres of industrial use, and 45 acres for a luxury RV park. No existing facilities are expected to be reused, and there could be an estimated 1 million square feet of new construction by 2005, increasing to about 1.8 million square feet by 2015 and 2.8 million square feet by full buildout.



The Collier land use plan includes exchanging some previously transferred property for remaining surplus property, as shown on the adjacent page.

Site development for the Collier proposal would probably be required to meet similar standards for stormwater retention that would apply to the Proposed Action. The system would not need to be as extensive because of the lower amount of impervious surface.

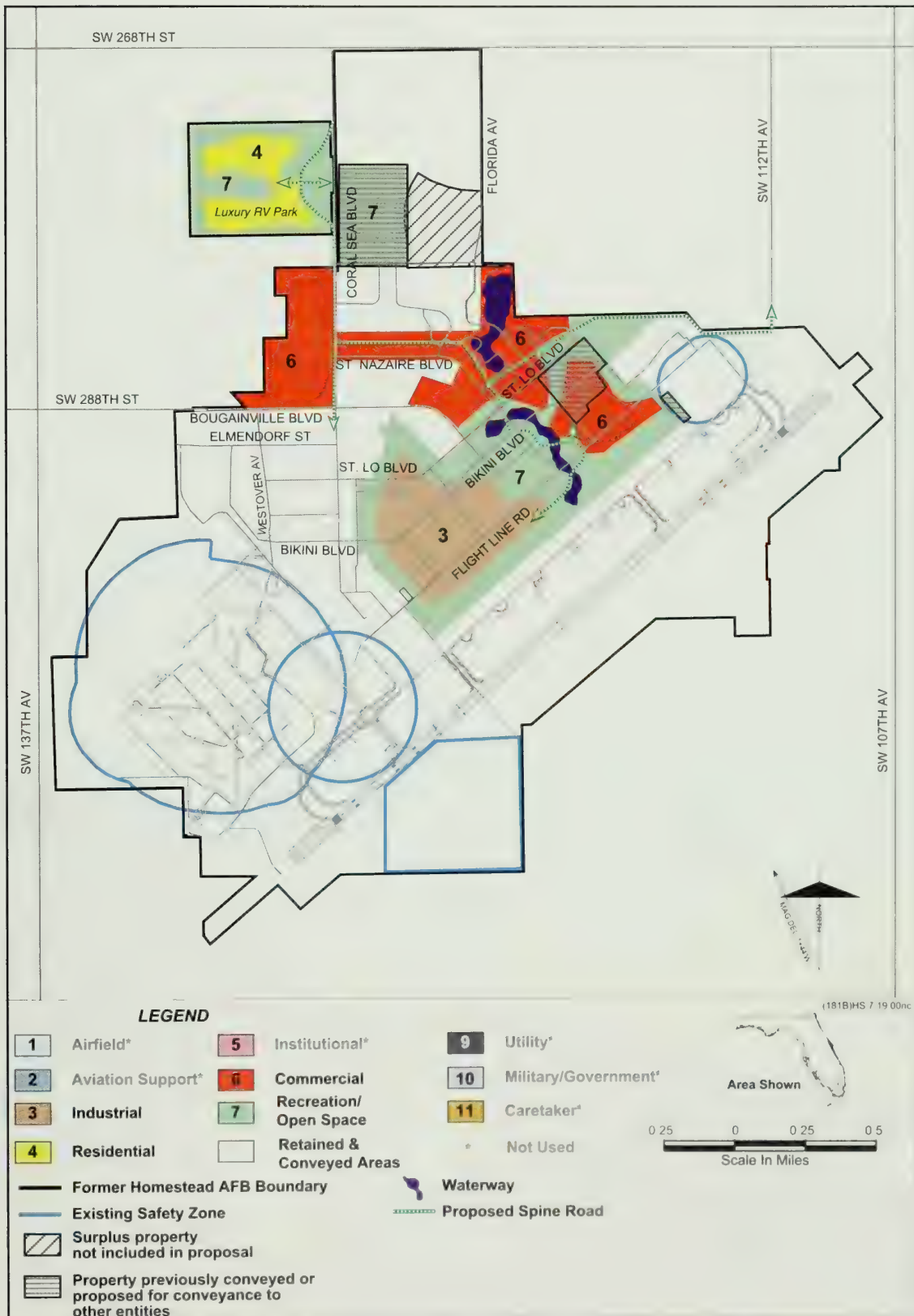
By full buildout, the Collier proposal is estimated to be the least job intensive alternative. On-site jobs are projected to increase rapidly to 1,900 by 2005 but then more slowly to 6,800 jobs by full buildout, not including construction jobs. Traffic associated with this proposal would increase by an estimated 31,600 average daily trips by 2015 and to about 37,400 by full buildout.

Employee and visitor spending and related procurements could generate 4,800 additional off-site jobs in south Miami-Dade County by 2015, increasing to 7,100 by full buildout. In-migrating population could be about 1,000 by 2015, increasing to 1,600 by full buildout.

This additional growth is estimated to generate a demand for about 500 acres of off-site land for additional residential, commercial, and industrial use by 2015 and 800 acres at full buildout.



# Original Collier Resources Company Proposal Land Use





## Mixed Use Alternative: Original Hoover Environmental Group Plan

The original plan developed by the Hoover Environmental Group is a conceptual plan and, at the time it was submitted, no developer or proponent had been identified to implement this idea. The original Hoover plan is titled the "WetLand Project" and includes commercial, industrial/research, and residential uses. Like the Collier-Hoover proposal, this proposal is planned as a demonstration of sustainable development and would feature a world-class aquarium celebrating local marine, estuarine, and wetland ecologies.

The Hoover plan emphasizes recycling of construction materials (from demolition) and solid wastes. Partially permeable materials are proposed to be used for roads and parking areas.

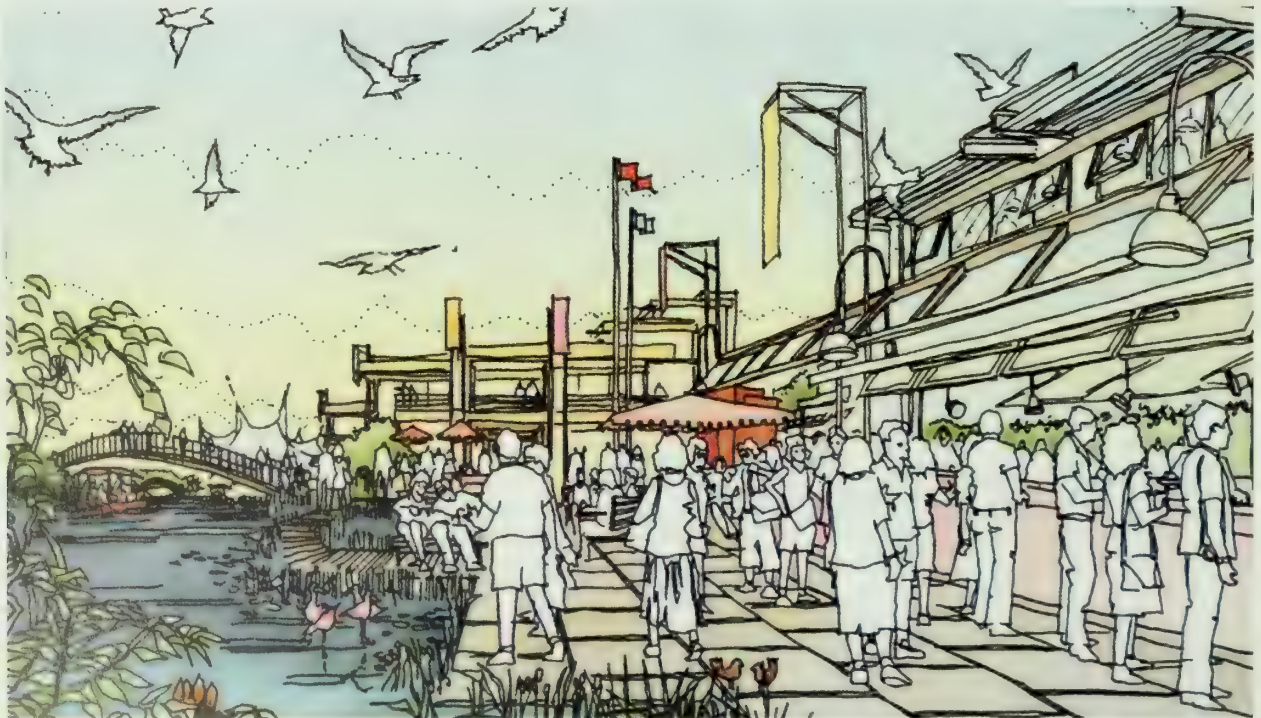
The plan includes an extensive network of wetlands that would be expected to retain most of the stormwater on site. On-site wastewater treatment is proposed using a system that assists with biodegradation of wastes in specially designed pools. Any on-site treatment system would need to obtain applicable state and local permits. Generation of solar power for on-site needs is also proposed, using a solar (photovoltaic) system.

The Hoover plan provides for 234 acres of medium- and high-density residences, 174 acres of commercial development, and 264 acres of

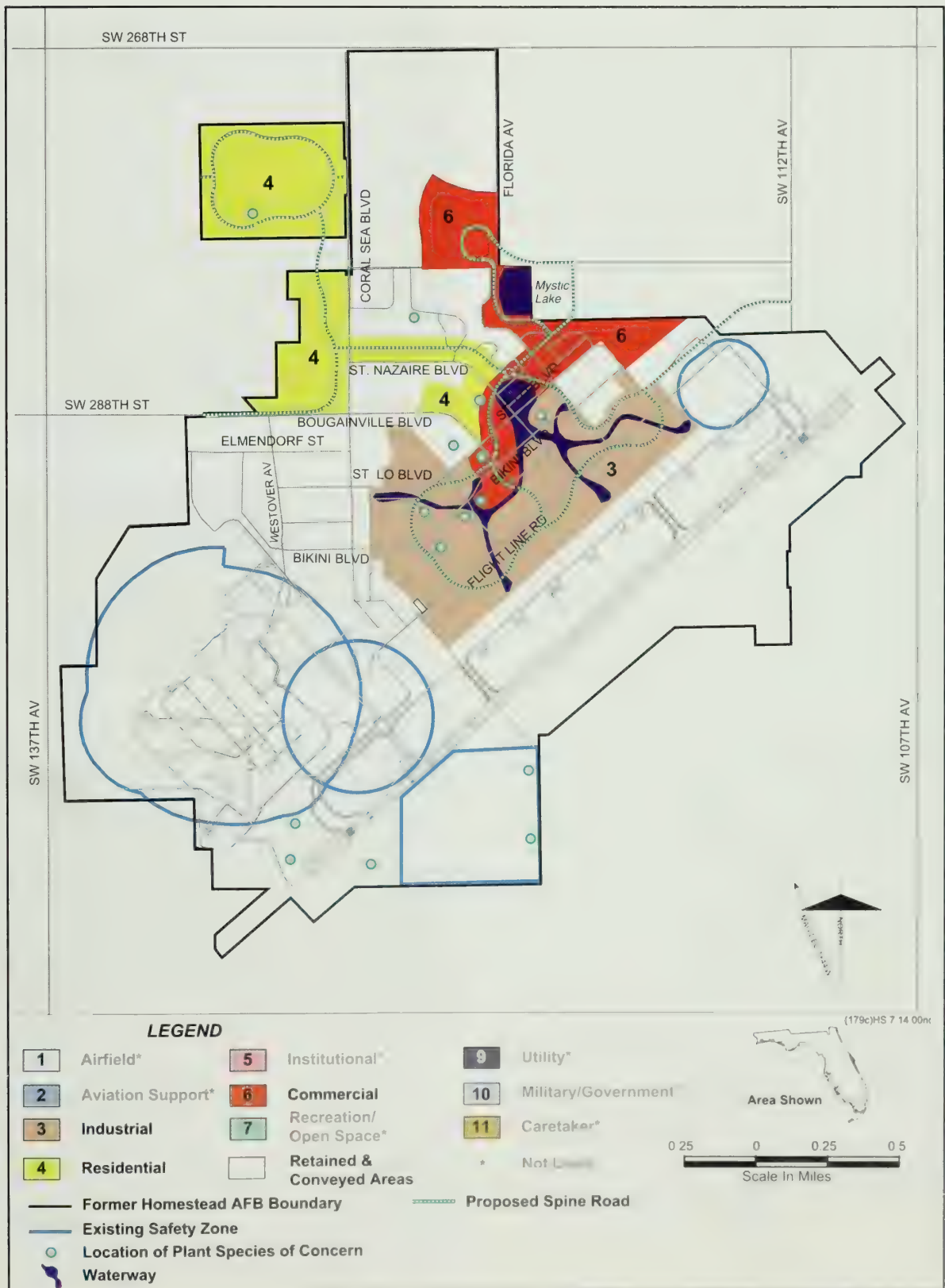
industrial use. It is not anticipated that any existing buildings would be reused, and the existing aprons would be demolished. New construction could include almost 1.8 million square feet by 2005, increasing to 4.7 million square feet by 2015 and over 6 million square feet by full buildout.

This plan includes the most estimated jobs in the earliest time frame of all of the alternatives studied, if it is successful. Estimated on-site employment is 6,500 jobs by 2015 and almost 11,000 by full buildout, not including construction jobs. This plan also has high traffic estimates, because of all the expected visitors to the aquarium and other attractions. Total traffic is estimated to be nearly 49,000 daily trips by 2015 and nearly 66,800 trips at full buildout.

The Hoover plan would be likely to stimulate a small amount of off-site commercial activity, supporting increased visitor activity and spending in the south Miami-Dade County area. About 9,000 off-site jobs in the south county by 2015 could generate in-migration of about 1,700 people and a demand for about 1,300 acres of residential, commercial, and industrial land. Beyond 2015, full buildout could create over 12,000 off-site jobs in the south county, in-migration of over 2,600, and a demand for a total of 1,800 acres.



# Original Hoover Environmental Group Plan Land Use





## Other Suggested Uses for Former Homestead Air Force Base

### Independent Land Use Concepts

A number of other reuse suggestions were submitted through the scoping process and as part of local planning initiatives. Most of these concepts were not firm proposals but could occur in concert with one or more of the comprehensive reuse alternatives.

Specific concepts included a plant nursery, an aircraft maintenance facility, a small package and mail distribution center, back-office businesses, a film/television production studio, a theme park, a world teleconference center, research facilities, a building materials fabrication plant, a cemetery, a corrections complex, and an education complex. Many of these concepts would be compatible with one or more of the comprehensive alternatives. The potential effects of implementing feasible concepts were evaluated in the SEIS.

### Alternatives Not Analyzed in Detail

Some suggestions were considered but not carried forward for further analysis. These ranged from ceasing all aviation operations to bringing in a new military mission. The Air Force has no plans to change the current military missions at the former base. No other military missions have been planned for the former base.

Suggestions to combine a spaceport with a scheduled commercial passenger airport were considered infeasible due to lack of land and probable schedule interference. A more modest combined Commercial Spaceport/Airport was examined in the SEIS.

Locating a veterans' hospital on the former base did not seem reasonable given the capacity of local private hospitals and veterans' hospitals nationwide, but a small clinic could be possible.

Suggestions to convert surplus land to a wildlife sanctuary or national park were not thought to be suitable for the site and could attract birds and pose added safety hazards for ongoing military aircraft operations. Furthermore, no agency responsible for managing such areas has expressed interest in transfer of the property at former Homestead AFB for those purposes.



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## No Action Alternative



A No Action alternative is analyzed in the SEIS for comparison with the reuse alternatives. In this alternative, the Air Force would keep and operate the runway.

No Action constitutes no disposal and no reuse of the remaining surplus property. Facilities on the surplus property would be emptied and any remaining utility supplies would be disconnected. The surplus land would be fenced with minimal caretaker functions. Periodic inspections for dumping or vandalism may be performed. Cleanup of previously contaminated sites would continue as planned. There would be no further demolition in the caretaker areas unless required for environmental, health, or safety reasons.

Homestead ARS would continue to operate with approximately 20,000 annual government aircraft operations. All uses on previously conveyed land of former Homestead AFB would also continue.

Unrelated to any reuse of surplus land at former Homestead AFB, growth will occur in Miami-Dade County. Several federal, state, and local organizations have generated population forecasts for Miami-Dade County. These organizations generally show population growth at least as rapid as has been experienced since 1980.

Population growth can be expected to result in development of additional residential, commercial, and industrial land uses and conversion of undeveloped and agricultural lands to more intensive use. The amount of development has been estimated using typical acreage ratios for housing and employment. Projected urban development to support even a moderate population growth is estimated to involve about 4,000 acres of agricultural land and 4,500 acres of unprotected vacant land in south Miami-Dade County between 1995 and 2015.





## Summary and Comparison of Alternatives

The following tables provide a summary of factors that were used to analyze environmental impacts from development and reuse of the disposal property at former Homestead AFB. The No Action alternative is not included in the tables because it assumes no development of the disposal property. In general, the information in these tables does not include changes expected to occur on the retained and conveyed property. Those changes are common

to all alternatives and part of the future baseline. The exception is aircraft operations, which include ongoing military and government operations. In addition to information about on-site activities, the table provides estimates of reuse-related off-site employment, population increases, and development in south Miami-Dade County, where the majority of effects from reuse of the disposal property are expected to be concentrated.

Factor	Proposed Action (increase over projected baseline)			
	2000	2005	2015	Full Buildout
Reuse of Existing Facilities (000 square feet)	0	449	449	449
Demolition (000 square feet)	0	38	207	312
New Construction (000 square feet)	0	700	4,799	6,370
Ground Disturbance (acres)	0	144	566	710
Impervious Surface (percent coverage)	29	30	44	48
Aircraft Operations	60,658	74,697	150,735	231,274
On-Site Employment	0	2,211	13,187	17,459
On-Site Population	0	0	200	300
Site-Related Daily Vehicle Trips	50	6,502	44,601	67,007
Site-Related Peak Hour Vehicle Trips	0	706	4,979	7,687
On-Site Water Demand (million gallons per day)	0.00	0.11	0.73	1.02
On-Site Wastewater Generation (million gallons per day)	0.00	0.09	0.58	0.82
On-Site Solid Waste Generation (tons/day)	0.0	7.4	39.4	60.6
On-Site Electricity Demand (megawatt hours/day)	0	37	212	286
Total Off-Site Employment	0	2,316	14,359	20,995
South County Off-Site Employment	0	1,426	10,004	15,257
Population In-Migration to Miami-Dade County	0	518	3,156	4,407
Population In-Migration and Relocation to South County	0	518	10,597	14,951
Off-Site Development (acres)	0	216	1,973	2,862

## Summary and Comparison of Alternatives

Plans for the Proposed Action and alternatives are not fully formulated, and best estimates have been generated for analysis purposes. These alternatives encompass a range of land uses and levels of development for the disposal property. The

alternatives may not develop exactly this way. The projections far into the future, especially for full buildout, are likely to evolve and may differ somewhat from the predictions in this document.

Commercial Spaceport Alternative (increase over projected baseline)				Mixed Use Alternative –Market-Driven (increase over projected baseline)			
2000	2005	2015	Full Buildout	2000	2005	2015	Full Buildout
0	460	460	460	0	79	182	465
0	123	240	298	0	39	104	281
0	746	2,218	3,068	0	941	2,655	7,626
0	139	289	370	0	80	223	633
29	30	34	36	29	30	33	41
19,824	19,984	20,304	20,304	19,824	19,824	19,824	19,824
0	2,261	5,128	6,600	0	1,871	4,607	12,052
0	0	0	0	0	340	1,080	3,440
0	7,103	16,973	22,480	0	6,251	18,822	52,940
0	757	1,991	2,501	0	719	2,143	6,011
0.00	0.12	0.28	0.38	0.00	0.15	0.44	1.29
0.00	0.10	0.22	0.30	0.00	0.12	0.35	1.03
0.0	7.5	17.3	23.1	0.0	5.4	14.9	42.1
0	57	128	171	0	35	98	279
0	2,144	4,937	6,417	0	1,855	4,680	12,425
0	1,271	3,344	4,339	0	1,449	3,647	9,669
0	504	1,153	1,492	0	426	1,063	2,805
0	504	1,153	1,492	0	426	1,063	2,805
0	195	499	646	0	213	532	1,409



## Summary and Comparison of Alternatives

Factor	Mixed Use Alternative—Collier-Hoover Proposal (increase over projected baseline)			
	2000	2005	2015	Full Buildout
Reuse of Existing Facilities (000 square feet)	0	0	0	0
Demolition (000 square feet)	70	746	746	746
New Construction (000 square feet)	0	866	1,792	2,964
Ground Disturbance (acres)	0	702	1,115	1,215
Impervious Surface (percent coverage)	29	19	25	29
Aircraft Operations	19,824	19,824	19,824	19,824
On-Site Employment	0	2,560	5,490	10,070
On-Site Population	0	1,220	2,610	3,050
Site-Related Daily Vehicle Trips	0	21,557	39,606	57,550
Site-Related Peak Hour Vehicle Trips	0	1,511	3,407	5,578
On-Site Water Demand (million gallons per day)	0.00	0.90	1.82	2.11
On-Site Wastewater Generation (million gallons per day)	0.00	0.20	0.38	0.54
On-Site Solid Waste Generation (tons/day)	0.0	7.3	15.4	25.4
On-Site Electricity Demand (megawatt hours/day)	0	32	75	123
Total Off-Site Employment	0	3,737	6,871	11,683
South County Off-Site Employment	0	5,850	8,278	12,014
Population In-Migration to Miami-Dade County	0	719	1,414	2,491
Population In-Migration and Relocation to South County	0	719	1,418	2,496
Off-Site Development (acres)	0	850	1,202	1,746

## Summary and Comparison of Alternatives

Mixed Use Alternative–Original Collier Plan (increase over projected baseline)				Mixed Use Alternative–Original Hoover Plan (increase over projected baseline)			
2000	2005	2015	Full Buildout	2000	2005	2015	Full Buildout
0	0	0	0	0	0	0	0
0	746	746	746	0	563	746	746
0	1,040	1,836	2,840	0	1,768	4,656	6,156
0	897	976	1,062	0	507	986	1,176
29	21	25	29	29	20	28	32
19,824	19,824	19,824	19,824	19,824	19,824	19,824	19,824
0	2,111	4,077	6,810	0	3,047	6,819	10,910
0	2,140	2,930	3,050	0	1,200	4,440	4,440
0	17,580	31,637	37,402	0	28,789	48,931	66,748
0	503	963	1,235	0	2,179	4,384	6,427
0.00	1.73	1.95	2.17	0.00	0.41	1.09	1.45
0.00	0.31	0.49	0.66	0.00	0.33	0.88	1.16
0.0	10.1	19.8	28.9	0.0	13.5	34.5	48.9
0	42	82	119	0	61	161	213
0	1,905	4,845	7,138	0	3,976	7,860	11,982
0	1,487	3,771	5,540	0	5,992	9,024	12,181
0	461	1,023	1,597	0	805	1,682	2,624
0	461	1,023	1,597	0	805	1,682	2,624
0	220	545	807	0	874	1,314	1,776



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## Environmental Issues Identified for Analysis

The factors on the preceding four pages may have the potential to affect environmental resources. The SEIS public scoping process helped identify the environmental topics of special importance to the public, agencies, and groups interested in the disposal and reuse of former Homestead AFB.

Formal scoping for the SEIS began with the publication of a Notice of Intent to prepare an SEIS on February 27, 1998, and ended on July 10, 1998. Six public meetings were held on April 14 and 15 and June 24 and 25, 1998, in the cities of Homestead and Miami to solicit comments and concerns from the general public on the disposal and reuse of former Homestead AFB property. A total of 650 people attended the meetings, and 195 gave testimony.

In addition, over 20 focused scoping meetings were held with a wide variety of state agencies, community representatives, and other interest groups to provide maximum opportunity for people to participate in defining the scope of the SEIS and the alternatives to be considered. By the end of the formal scoping period, over 300 written comments had also been received.

The following topics were highlighted as especially important issues during public scoping for the SEIS:

- Economic revitalization of South Florida;
- Protection of nearby national parks and Biscayne Bay;
- Increased noise in the community;
- Agriculture;
- A buffer between the former base and Biscayne National Park;
- Safety; and
- Possible airport expansion.

Scoping comments from agencies and the public that directed attention to these topics included:

***Economic Revitalization.*** Several commentors stated that there was a need for economic revitalization in south Miami-Dade County. Some felt an airport would help balance the seasonal fluctuations of south Florida's economy. Others felt an airport would not produce the kind of immediate revenue and economic growth needed for the area economy. Commentors requested that the socioeconomic analysis address jobs, income, housing, and other indicators of economic health and that the SEIS ensure the environmental picture is balanced with the economic picture.

***Protection of Nearby National Parks.*** Commentors expressed concern about the compatibility of an airport so close to two national parks. Aircraft overflights were perceived as a disturbance to the visitor experience and the delicate ecosystem of both parks.

Commentors expressed concern about the effects of increased stormwater runoff and increased contaminants flowing into Biscayne Bay from development of an airport. Commentors felt that the reef beds, seagrass, and mangroves, especially within Biscayne National Park, are currently under pressure from population growth and increased contamination. With the development of an airport, concerns were raised that these ecosystems would face greater stress in the form of traffic, noise, fuel spills, and stormwater runoff.

Resources in the national parks that commentors expressed concern about included air quality, water quality, and biological resources. The potential for aircraft noise to affect birds and other species was also identified as a concern.



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## Environmental Issues Identified for Analysis

**Community Noise.** Commentors asked that the noise analysis be readressed to identify noise effects on the community. Concern was raised that the metrics used for noise analysis include not just average noise measurements. Local residents within the region expressed the desire that airport noise studies and county studies and plans for noise management be consistent. Some commentors expressed concern that aircraft noise would be detrimental to residents. The schedule of aircraft flights, especially night flights, was also noted as a potential area of impact in the local community.

**Agriculture.** Commentors indicated that the south Miami-Dade County economy relies on agriculture as its primary industry. Concerns were raised that the proposed airport development and resulting secondary urban growth would reduce agricultural lands and adversely affect the economy. Some commentors felt that agricultural lands should be retained for agricultural purposes and as a buffer for the national parks. Other commentors opposed the use of agricultural land for a buffer area because they fear that may lower property values.

**Buffer Lands.** A number of comments expressed concern about the increasing potential for urban development to expand beyond the Urban Development Boundary and encroach on Biscayne

National Park. Organizations such as the South Florida Ecosystem Restoration Task Force recommended establishment of a buffer area between former Homestead AFB and the park.

**Safety.** Commentors expressed concern about the proximity of the Homestead AFB runway and flight paths to Turkey Point Nuclear Power Plant. They felt mechanical difficulty could cause an aircraft to fly off course and crash into the facility, and crashes near or at Turkey Point would be catastrophic and cause irreparable damage. With the former base's close proximity to numerous wetlands and wildlife habitats, concerns were raised about bird-aircraft strike hazard. Some felt that an airport would be inconsistent with FAA policy to avoid building airports near wetlands. The impacts of an airplane crash, should one occur, on the environment was also identified as a concern.

**Possible Airport Expansion.** Questions were raised about the scope of the analysis and whether it could address expanded airport development, specifically the potential for a second runway as presented in the county's Airport Layout Plan.

Over 8,000 oral and written comments were submitted on the Draft SEIS. These comments reiterated the concerns expressed during scoping. The following pages summarize the findings of the SEIS analysis for these topics.





## Economic Revitalization of South Florida

Following Hurricane Andrew and the realignment of Homestead AFB, the public leadership and business community of south Miami-Dade County initiated plans for recovering from the deleterious effects that the hurricane and base downsizing had on the local economy. The Mayor of Miami-Dade County established an Economic Summit to address South Miami-Dade Revitalization. The county held a workshop that identified three priorities for ensuring the south county's economic future: developing Homestead AFB, sustaining agriculture, and expanding tourism.

Overall, redevelopment of former Homestead AFB is expected to have a beneficial impact on the local south Miami-Dade County economy. The approximately 27,546 on-site and off-site jobs estimated to be generated by 2015 under the Proposed Action would contribute about 2 percent to countywide employment. In the area south of Eureka Drive, the employment estimated for the Proposed Action would more than double the amount of job growth expected to occur without reuse of the former base. At full buildout, the Proposed Action could generate 38,454 jobs. An equivalent increase in earnings could also result from the Proposed Action. Reuse-related earnings are estimated to be about \$799 million by 2015, which could be about a third of earnings in south Miami-Dade County. This could increase to over \$1 billion by full buildout.

Employment generated by the Commercial Spaceport alternative, although less than the Proposed Action, is also projected to be substantial. An estimated 10,065 additional jobs in Miami-Dade County by 2015 would represent about 1 percent of countywide employment, but in the south county, there could be a 32 percent increase over projected baseline job growth. By full buildout, reuse-related employment is estimated to increase to 13,017 jobs. Earnings are estimated at about \$295 million in 2015, increasing to about \$381 million at full buildout. A spaceport could provide relatively high-paying skilled and technical jobs and attract other high-tech industries. The novelty of a spaceport could also attract tourism.

The economic effect of the Mixed Use alternative would depend on the method of implementation. Market-Driven development would be expected to have the least short-term effect on the local economy (other than the No Action alternative), especially if most of the reuse of former base property depended on latent demands in the area. The availability of former base property might affect the location of industrial and commercial development within the region, but it would be unlikely to stimulate increased development. If incentives were used to attract development, there could be a potential for reuse to contribute 9,287 jobs to job growth and about \$263 million in earnings by 2015. By full buildout, this could increase to 24,477 jobs and \$695 million in earnings, but this might not occur until the middle of the next century.



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## Economic Revitalization of South Florida

The joint proposal submitted by Collier Resources Company and the Hoover Environmental Group, as well as the original proposals submitted by these proponents, emphasize tourism and vacationing and could complement other attractions in the area and augment tourism and service industries. These plans project more rapid development initially than assumed for the Market-Driven development. By 2015, the Collier-Hoover proposal is estimated to generate 12,357 jobs and \$358 million in earnings. This could increase to 21,752 jobs and \$631 million in earnings by full buildout. This is more than projected for the original Collier proposal (13,948 jobs and \$405 million at full buildout) and slightly less than projected for the original Hoover plan (22,892 jobs and \$665 million by full buildout). Any of the plans analyzed under the Mixed Use alternative could have substantial beneficial effects on the local economy. The original Collier proposal's contribution is estimated to be similar to the Commercial Spaceport alternative, while that of the Collier-Hoover proposal and original Hoover plan, if they achieved the levels of visitation envisioned, could be higher.

The reuse alternatives differ in their anticipated impacts on population growth in the region. Because of the size of the labor pool in the region, any of the alternatives would likely have only a moderate effect on population growth at the county level. Reuse-related employment could have the potential to affect the distribution of population growth within the county. If Miami-Dade County grows at the moderate rate forecast by the Bureau

of Economic Analysis and the State of Florida, population south of Eureka Drive could increase from about 163,235 residents in 1995 to about 239,592 in 2015. Although the available labor force in the county as a whole would be sufficient to meet the employment demands of the Proposed Action and alternatives, the number of workers in the south county, where most reuse jobs could be located, would not be enough to fill all the jobs that could be generated by the Proposed Action. Therefore, some relocation of workers and their families from the north part of the county to the south county could be expected if the Proposed Action were implemented. This is not necessarily the case for the Commercial Spaceport and Mixed Use alternatives. Under any alternative, a small number of people from outside the region would likely be attracted to the area by the job opportunities.

By providing more jobs in south Miami-Dade County, the Proposed Action and alternatives could improve the balance between the number of jobs and the number of residents in the south county. Currently, there are an estimated 0.8 jobs per housing unit in the south county, well below the countywide average of 1.4 jobs per housing unit. The Proposed Action could increase the number of jobs per housing unit in the south county to about 1.0 by 2015, and the other reuse alternatives somewhat less. This could result in increased household income and spending. It would also add to the local tax base and generate increased capital for maintaining and improving community infrastructure. The increase in local population would place more demands on public services, but the impact on public services is not expected to be as great as the benefits.





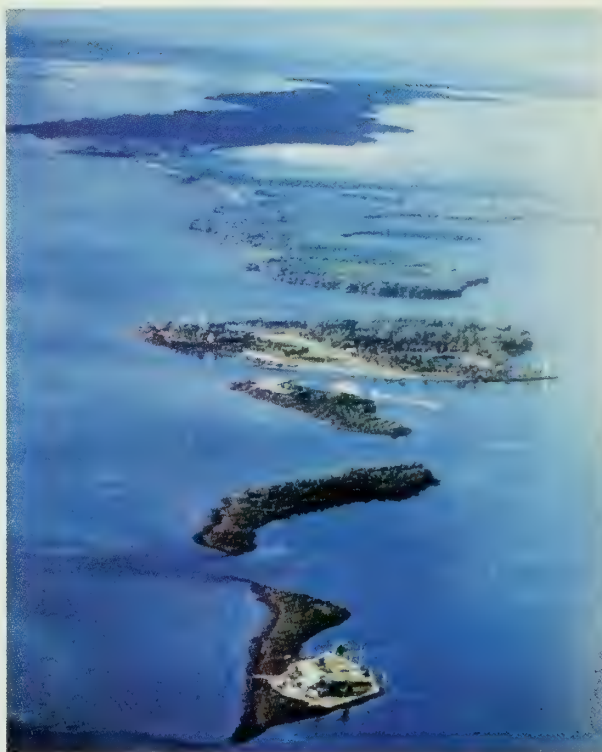
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## Protection of Nearby National Parks

Two national parks are located near former Homestead AFB. Biscayne National Park (NP) is about 2 miles and Everglades National Park about 10 miles from the former base. Both parks are affected by the activities and developments that have occurred in south Florida over the years. Most notably, the Central and South Florida Project dramatically altered the south Florida environment by channelizing and controlling flood water and stormwater runoff. This decreased the amount of surface and groundwater inputs into the parks. The South Florida Ecosystem Restoration Program is aimed at reversing some of the past effects on the ecosystems of the parks, and the Everglades in particular.

Under the National Park Service Organic Act, “the fundamental purpose” of Biscayne and Everglades National Parks, as of other units of the National Park System, “is to conserve the scenery and the natural and historic objects and the wildlife therein and to provide the enjoyment of the same in such a manner and by such means as will leave them unimpaired for the enjoyment of future generations.” The National Park Service (NPS) interprets the resources that it is mandated to preserve unimpaired to include, among others, natural soundscapes, air quality, water quality, and wildlife.

The values and resources of Biscayne and Everglades NPs are influenced by a wide range of environmental factors, including air quality, water quality, habitat alteration, and intrusions on the solitude and natural quiet. These factors are interrelated components of the environments within each park. The following sections summarize how the Proposed Action and alternatives may change these factors, how those changes may interact to affect the environment of the parks, and how the effects relate to the National Park Service’s policies, goals, and management activities at the two national parks.

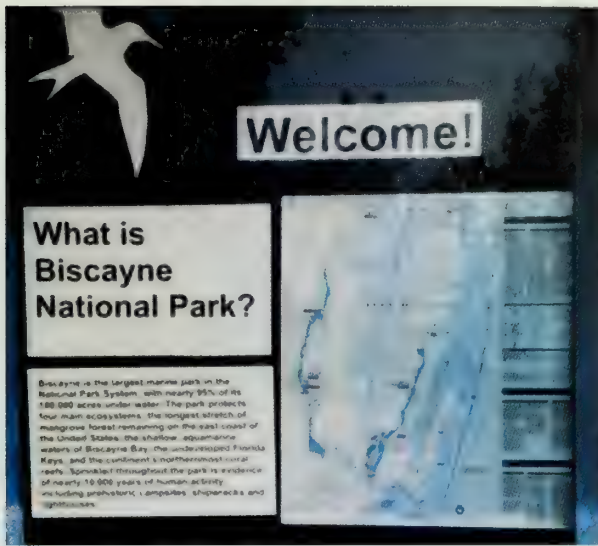


### Biscayne National Park

Biscayne NP has four main types of environments that form the planning units used by NPS to manage the park: the mainland area, the bay, the barrier islands (keys), and the coral reefs. Each has a unique combination of attributes, habitats, wildlife, and recreation opportunities. Specific management actions are employed to preserve the unique resources of each environment, as well as those of the park as a whole. The Superintendent of Biscayne NP has identified water pollution, reduced surface and groundwater inflow, loss of undeveloped buffer land, and noise as the most serious potential impacts from outside the park.



## Biscayne National Park



In addition, there were other issues identified during scoping concerning potential impacts on Biscayne NP. Pressures from urban development, and in particular from secondary development related to reuse of former Homestead AFB, were a source of potential concern. Air emissions from vehicles and aircraft also were identified as potential sources of impact. Questions were raised about the possible effects of redevelopment on flora and fauna in Biscayne NP.

To address these concerns, the discussion that follows summarizes potential impacts related to population growth, air quality, water quality, noise, and biological resources. Issues related to the loss of undeveloped buffer land adjacent to Biscayne NP and possible establishment of a protected area between the former base and the park are addressed separately below in the discussions on Agriculture and Buffer Lands.

**Population Growth.** South Florida has experienced significant population growth in the last several decades and is expected to continue to grow in the future. To date, most of the growth has been concentrated in northern Miami-Dade County, around the City of Miami. Future population forecasts project more growth and development in southern Miami-Dade County, near Homestead and closer to Biscayne National Park. This growth is projected to occur with or without reuse of the disposal property at former Homestead AFB.

The level of growth and its resulting impacts depend on how rapidly the population of south Miami-Dade County increases. Federal and state agencies that forecast population growth have projected a relatively moderate rate of growth over the next 20 years. The county itself, however, has forecast a much higher growth. If the county's forecasts are realized, the population of Miami-Dade County south of Eureka Drive could more than double by 2015.

This level of growth, whether at a moderate or a high rate, will generate significant development pressures on the south county. It is estimated that, by 2015, a moderate growth rate could result in development of approximately 8,500 additional acres of land in the south county that is currently vacant or in agricultural use. Secondary development associated with the Proposed Action and alternatives could add another 2,000 acres of development by that time. With a high level of growth, the baseline amount of development could be as high as 20,000 acres or more. This represents about 20 percent of all the undeveloped land in south Miami-Dade County that is not currently protected from development. Depending on whether the moderate or high-growth forecasts are realized, the Proposed Action could increase the rate of development in the south county by 10 to 20 percent.





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## Biscayne National Park

The potential impacts of this growth and development on Biscayne NP would depend in part on the land use controls imposed by Miami-Dade County. The county currently limits most development to an area defined by an Urban Development Boundary (UDB). The county has also identified an Urban Expansion Area for future development outside the UDB. The current UDB ends at former Homestead AFB. The area between the former base and Biscayne NP is currently outside the UDB. Concerns have been expressed that development pressures will encourage the county to relax the current limitations on development outside the UDB, and it will encroach more and more on Biscayne NP.

Much of the area between the former base and the park is presently protected from encroachment through other programs, such as the county's Environmental Endangered Lands program. However, there are some private lands and agricultural areas that could be developed. It cannot be guaranteed that, under current conditions, development will not expand into this area and come closer to the fragile and sensitive ecological areas that line the western shoreline of Biscayne NP.

**Air Quality.** Aircraft air pollutant emissions can potentially affect air quality, and they include chemicals that can settle to the surface and potentially affect water quality (addressed below). The main air quality issue in Miami-Dade County is ozone. The county has exceeded the National Ambient Air Quality Standard for ozone in the past and, although it is in attainment of the standard now, it is classified as a "maintenance" area and has



to carefully monitor air pollutant emissions that may affect its status. Ozone is formed in the atmosphere from nitrogen oxides and volatile organic compounds, both of which are emitted by aircraft, as well as by automobiles and other combustion engines.

Nitrogen oxides are of greater concern in Miami-Dade County than volatile organic compounds because a smaller increase would be needed to exceed the National Ambient Air Quality Standard for ozone. Therefore, the analysis for the SEIS focused primarily on emissions of nitrogen oxides from the Proposed Action and alternatives.

The Proposed Action is estimated to contribute about 0.5 percent of the county's emissions of nitrogen oxides in 2015. The Commercial Spaceport alternative's contribution is estimated at less than 0.1 percent (0.2 for a combined Commercial Spaceport/Airport), and the Mixed Use alternative also at less than 0.1 percent. These levels would not jeopardize Miami-Dade County's ability to meet the National Ambient Air Quality Standards for ozone or appreciably change the air quality of Biscayne NP. None of the alternatives are expected to generate other air pollutants in quantities sufficient to affect the county's ability to remain in attainment of the National Ambient Air Quality Standards or appreciably affect Biscayne NP air quality.

**Water Quality.** Biscayne NP is about 95 percent water. Water quality in Biscayne Bay is of prime importance to preserving the park's resources. Biscayne Bay has been designated as an Outstanding Florida Water. The bay supports the diverse and important resources that make Biscayne NP unique and are the focus of the National Park Service's management activities there. Maintaining water quality in Biscayne Bay is important to preserving sensitive wildlife habitat and other resources of the park.



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## Biscayne National Park

The concerns related to effects on water quality in Biscayne Bay from the Proposed Action and alternatives include changes in stormwater runoff, changes in groundwater flows, and emissions of air pollutants from aircraft and other sources.

Development on former Homestead AFB would increase the amount of impervious surface on the site, resulting in more stormwater runoff. This runoff would enter the network of on-site canals leading to Boundary Canal and, ultimately, Military Canal. As a result of the increase in impervious surface, total stormwater runoff from the site is estimated to increase by 43 percent under the Proposed Action, 30 percent under the Commercial Spaceport alternative, and 15 percent under the Mixed Use (Market-Driven) alternative. The amount of this runoff that would be discharged to Biscayne Bay would vary, depending on how stormwater is managed on the former base.

The Proposed Action includes a Surface Water Management Master Plan for managing on-site stormwater. The plan is required to comply with permit provisions pending before the South Florida Water Management District. It includes a network of French drains and other features designed to retain as much of the stormwater as possible on the airport property. This would reduce fresh-water discharges from Military Canal into Biscayne Bay. It is estimated that the county's plan could reduce discharges from the former base into the bay by about 28 percent by 2015, despite an estimated 43 percent increase in runoff.

It is assumed that the Commercial Spaceport alternative would be required to have a similar plan. The Mixed Use alternative might or might not face a similar requirement. If the property were acquired and developed in small parcels (less than 100 acres), as envisioned with Market-Driven development, a comprehensive stormwater management plan may not be developed, although some level of stormwater management may be required. Without a comprehensive stormwater management system that retained stormwater on site, the amount of water discharged into Biscayne Bay from Military Canal could increase by an estimated 15 percent by 2015. If the property were acquired by a single developer, such as Collier Resources Company, a system similar to the Proposed Action's would be



required. The Collier-Hoover proposal, like the original Hoover plan, incorporates a system that would retain the bulk of stormwater on site.

Retaining stormwater on the site would reduce the amount of chemicals (including nitrogen) discharged to Biscayne Bay. It would also increase the amount of water that entered the bay through groundwater because more of the stormwater would sink into the ground. However, understanding the total effect of reuse of Homestead AFB on water discharges to Biscayne Bay requires considering the net impact of both on-site development and secondary off-site development stimulated by the Proposed Action and alternatives. While plans to retain most of the stormwater from on-site development would reduce surface water discharges and increase groundwater discharges, secondary development could have the opposite effect.

The secondary development would not necessarily include the level of stormwater management and control as is proposed for the site itself. Most of the secondary development is anticipated to be concentrated in areas close to the site, and the runoff from these areas would flow into Princeton and Mowry Canals.





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## Biscayne National Park

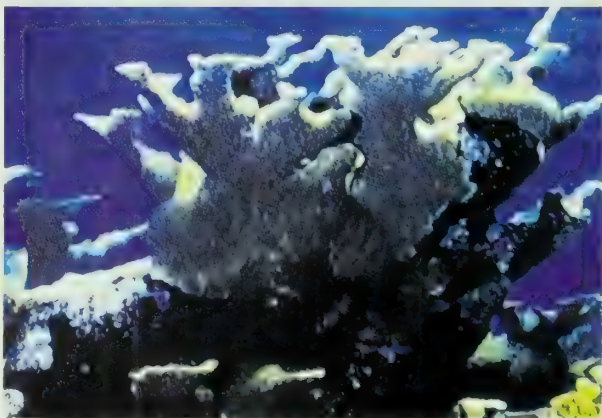
Therefore, the reductions in surface water discharges to Biscayne Bay achieved by the proposed Surface Water Management Master Plan (and similar ones implemented with other reuse alternatives) would be offset by increases in discharges from Princeton and Mowry Canals. Under the Proposed Action the net effect is estimated to be a 2.0 percent increase in the combined surface water discharges from Princeton, Mowry, and Military Canals over projected baseline levels in 2015. The net effect of the Commercial Spaceport alternative would be a 0.1 percent increase in combined surface water discharges. The Mixed Use alternative could result in a net increase of 0.9 percent (Market-Driven) to 1.1 percent (Collier-Hoover) in the combined surface water discharges of the three canals, compared to the projected baseline in 2015.

The increases in surface water discharges would be the result of an increase in impervious surface due to development. Without more use of stormwater retention systems, there would be a concomitant decrease in groundwater recharge and groundwater discharges to Biscayne Bay. Considering both surface and groundwater discharges together, all the reuse alternatives would be expected to result in an overall net increase in surface water flowing into Biscayne Bay (i.e., the increase in surface water flows is greater than the decrease in groundwater flows). The net increase is estimated to be highest for the Proposed Action and lowest for the Commercial Spaceport alternative.

Under the Proposed Action, the changes by 2015 are estimated to be equivalent to about 0.6 percent of combined projected baseline surface water discharges from Military, Mowry, and Princeton Canals. For the Commercial Spaceport alternative, the estimate is an increase of less than 0.1 percent, for the Market-Driven scenario of the Mixed Use alternative the estimate is a 0.3 percent increase, and for the Collier-Hoover proposal it is 0.5 percent. It is assumed that Military, Mowry, and Princeton Canals comprise about 60 percent of total surface water inputs to southern Biscayne Bay. If total inputs are considered, the percentages of increase are about 40 percent lower than listed above. In addition, these estimates do not take into consideration existing groundwater inputs to Biscayne Bay, the magnitude of which is not known but expected to be substantial.



Nitrogen compounds enter Biscayne Bay through stormwater, groundwater, and atmospheric deposition. Stormwater discharges are the largest source, and are anticipated to increase with the net increase in surface water inputs from the Proposed Action and other reuse alternatives. Nitrogen loads in groundwater are expected to decline with the net decrease in groundwater inputs under the Proposed Action and Market-Driven scenario, but increase under the Commercial Spaceport alternative and, possibly, the Collier-Hoover scenario. Airborne nitrogen oxides are emitted by aircraft and other air emissions sources and deposited on the surface. Atmospheric nitrogen deposition in Biscayne Bay from aircraft and vehicle traffic associated with the Proposed Action is estimated to increase by about 30,000 pounds per year by 2015, assuming no reduction in future nitrogen oxide emission rates from aircraft.



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## Biscayne National Park

Considering the total increase in nitrogen inputs through surface water and airborne sources, and the decrease through groundwater, the Proposed Action is estimated to result in a net increase of about 67,000 pounds per year in nitrogen inputs to Biscayne Bay by 2015. This is equivalent to about 3.6 percent of projected baseline nitrogen inputs through surface water discharges from Military, Mowry, and Princeton Canals alone.

Atmospheric nitrogen deposition under the Commercial Spaceport alternative is estimated to be about 10 percent of the Proposed Action. This deposition, estimated at about 4,057 pounds per year in 2015, would represent about 0.2 percent of the combined input from Mowry, Princeton, and Military Canals into Biscayne Bay. This could increase to 0.4 percent with a combined Commercial Spaceport/Airport. The net increase in nitrogen inputs from all sources is estimated to be about 24,000 pounds per year over the projected baseline by 2015. This would be about 1.3 percent of the combined projected baseline inputs of the three canals.

The Mixed Use alternative is estimated to generate a net increase in nitrogen inputs of between 16,735 (Market-Driven) and 32,518 (Collier-Hoover) pounds per year in 2015 (0.9 to 1.7 percent of the combined projected baseline input from the three canals). However, in the case of the Collier-Hoover scenario, this is probably an overestimate, as some nitrogen would likely be taken up by plants on site.

Atmospheric nitrogen concentrations would decrease with distance from the airfield, so higher levels of deposition would occur in nearshore areas than out by the keys. The nearshore levels are estimated to be about four times the average for the bay. For example, if the average annual deposition would be an estimated 0.33 pounds per acre for the Proposed Action (29,768 pounds divided by 90,000 acres), the nearshore rate would be closer to 1.43 pounds per acre per year.

Aircraft (and other combustion engines that use petroleum products) also emit polycyclic aromatic hydrocarbons. These are very small particles and, as a result, settle to the surface very slowly. Emitted from aircraft thousands of feet above Biscayne Bay, they would be dispersed widely by wind before



settling to the surface. Most would not be expected to reach the bay. Compounds from ground vehicles and aircraft on the ground at the airport could settle to the ground more readily and be transported into the canal system through stormwater runoff. There they would be likely to attach to sediments and be retained in the canals rather than be discharged into Biscayne Bay. It is not anticipated that the increases in these emissions from the Proposed Action and alternatives would be a major factor affecting water quality in Biscayne Bay.

**Noise.** Of particular interest to NPS in considering the development of a commercial airport at former Homestead AFB is preservation of the park's natural soundscape, which could be affected by aircraft noise. Biscayne NP has initiated a public planning process to develop a Soundscape Preservation and Noise Management Plan. The plan will evaluate and identify ways to mitigate intruding noise sources and consider alternatives for restoring the soundscape in areas with excessive noise intrusion.





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## Biscayne National Park

The noise effects that might be expected from reuse of Homestead have been analyzed using five metrics that focus on different aspects of noise. Two metrics, Sound Exposure Level (SEL) and Maximum Sound Level (LA<sub>max</sub>), measure the sound level of individual aircraft flights and are essentially used to identify the loudest aircraft. Two metrics, Day-Night Average Sound Level (DNL) and Peak Hour Equivalent Sound Level (Leq(h)), evaluate cumulative amounts of noise in a typical day. Cumulative sound levels reflect total acoustic energy based on the number of noise events, their magnitude of sound, and their duration. The fifth metric, Time Above (TA<sub>amb</sub>), is a time-based metric that calculates the length of time in an average day that aircraft could be heard above the traditional ambient sound level (i.e., all sounds other than aircraft).

Three of these five metrics were primarily used to evaluate noise in the national parks and refuges. LA<sub>max</sub> was selected as the single-event metric to assess the loudest aircraft noise that park visitors might hear. Leq(h) was selected as the cumulative metric to assess the total amount of aircraft noise that visitors might hear, based on aircraft operations for the busiest hour. TA<sub>amb</sub> was selected to assess the amount of time that aircraft noise would be above all other sounds in the national parks.

Biscayne NP is currently overflowed by military and other government aircraft using Homestead ARS and by civil aircraft using other airports, primarily Miami International Airport. These aircraft overflights will continue, regardless of how former Homestead AFB may be reused for other aviation or nonaviation purposes. The Homestead airfield is projected to remain active in the future as a military/government airfield much as it is today.

Military aircraft such as the F-16 and F-15 are the loudest aircraft heard in Biscayne NP. The maximum sound levels produced by military aircraft are between 65 and 85 decibels for most of Biscayne NP, although levels as high as the low 90s to the low 100s occur along the western shoreline of the park nearest the runway. The cumulative amount of noise Biscayne NP currently experiences



from Homestead and other airports ranges from Leq(h) of 50–60 decibels along the western side of the park nearest the runway, to 40–50 decibels in a large north-central area of the park, to 35 decibels and lower in roughly the southeastern third of the park. The future retirement from the civil fleet of some of the noisiest large aircraft is expected to reduce the cumulative noise effect of Miami International on the north-central area of Biscayne NP by 2015.

Aircraft operations from Homestead ARS and other airports produce noise that exceeds traditional ambient sound levels in Biscayne NP. The traditional ambient sound level includes all natural sounds (wind, waves, wildlife) and all human sounds (voices, boats, equipment), except for aircraft. At Biscayne NP, traditional ambient levels (all sounds except aircraft) were measured in the 45–56 decibel range.



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## Biscayne National Park

Most of the eastern half of Biscayne NP currently receives a daily average of 1 to 10 minutes of aircraft noise above the traditional ambient, while most of the western half receives between 10 and 30 minutes above the traditional ambient. Along the western border of the park, there are a few areas that receive between 30 minutes and 1 hour. These are not consecutive minutes, but time accumulated from aircraft operations throughout an average day. The future retirement from the civil fleet of some of the noisiest large aircraft using Miami International is also expected to reduce the amount of time that aircraft noise would be above the traditional ambient in Biscayne NP by 2015.

If a commercial airport is established at Homestead, Biscayne NP would experience essentially no change in the loudest aircraft noise heard (L<sub>Amax</sub>). This is because military aircraft that will continue to operate at Homestead in the future generate the

highest maximum sound levels, ranging from 5 to more than 20 decibels louder than civil aircraft. At maximum capacity use of the runway (well beyond the year 2015), a commercial airport might increase L<sub>Amax</sub> between 3 and 5 decibels in two areas of water in Biscayne NP east of the barrier islands, comprising about 5 percent of the park.

Leq(h) would increase in Biscayne NP along with forecast increases in commercial aircraft operations. However, even at maximum use of the runway at Homestead, the increase in Leq(h) above the traditional ambient sound level due to the addition of commercial aircraft to the military/government aircraft would be less than 3 decibels. In most areas of the park, cumulative noise levels resulting from commercial airport operation would be below the level of other measured nonaircraft sounds. At maximum use of the runway, Leq(h) could range from the 30s in the eastern portion of the park, to the 40s in the central region, to the mid-50s at the western shoreline nearer to the runway. In one area nearest the runway, Leq(h) may slightly exceed 60 decibels at maximum use.

The greatest difference in noise in Biscayne NP due to a commercial airport would be increases in the length of time that aircraft noise would be above the traditional ambient sound levels, since there would be many more civil aircraft operations than military ones. In 2005, the average daily TA<sub>amb</sub> is calculated to increase by less than 1 minute in roughly the eastern half of the park, and 1–10 minutes in the western half of the park. Two western shoreline areas would receive higher increases of 10–30 minutes. The TA<sub>amb</sub> would increase more in 2015 and again at maximum use. For maximum use, the central and eastern areas of Biscayne NP could experience daily increases amounting to less than 10 minutes, while areas along the western shoreline could receive increases of 10–30 minutes. Two areas close to the runway could receive increases of 1–2 hours.





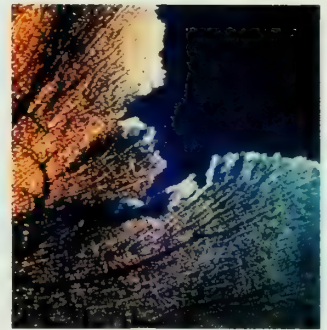
## Biscayne National Park

If the former base were reused as a commercial spaceport, instead of a conventional airport, the space launch vehicle is anticipated to be louder than the military aircraft. When a space launch would occur (estimated to be, at most, once a week by 2005 and three times a week by 2015), it would be the loudest aircraft and would increase L<sub>Amax</sub> in the northernmost portion of Biscayne NP. L<sub>Amax</sub> increases for 2015/full buildout are calculated at 5–10 decibels, except for two areas along the northern boundary of the park, where the estimated increase would be 12 and 17 decibels.

A commercial spaceport should be about the same as a conventional airport in overall effects on Leq(h) in most of Biscayne NP. The notable difference is that, by 2015 with a commercial spaceport, several areas along the northwest and northern edge of the park are estimated to receive Leq(h) increases between 5 and 10 decibels above the traditional ambient level, with one area receiving 15 decibels above the traditional ambient level.

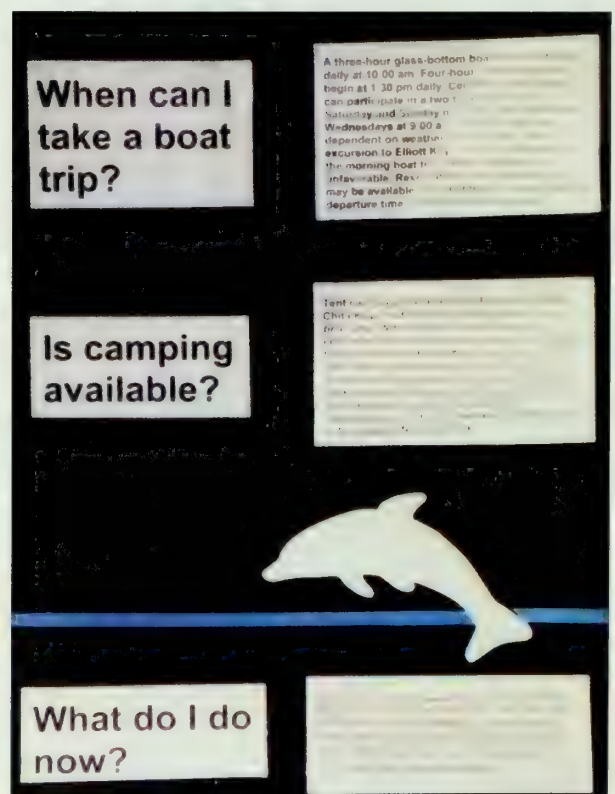
The Commercial Spaceport alternative presents a very different assessment of the time that aircraft noise could be expected to be above all other nonaircraft sounds in Biscayne NP. Although a commercial space launch vehicle would be quite noisy, it would operate on an infrequent schedule (estimated at three times a week at most by 2015). This would result in an increase in TA<sub>amb</sub> level of less than 3 minutes, averaged on a daily basis.

The result of either a commercial airport or a commercial spaceport at Homestead is that Biscayne NP would experience more noise. This could disturb and annoy some visitors and would make it more difficult for the park to accomplish its



goals of improving and preserving a more natural soundscape. The Mixed Use alternative, which would not include civil aviation use, would not increase aircraft noise, but would result in the same noise effects on Biscayne NP as the No Action alternative; that is, continuing military and other government aircraft operations together with aircraft overflights from other airports.

The FAA has examined alternative noise abatement flight tracks for a commercial service airport at Homestead Regional Airport that could reduce noise over the national parks. Alternative flight tracks cannot eliminate aircraft overflights of




**When can I take a boat trip?**

A three-hour glass-bottom boat daily at 10:00 am. Four-hour begin at 1:30 pm daily. Can participate in a two-hour Saturday and Sunday on Wednesdays at 9:00 a.m. dependent on weather. excursion to Elliott Key. the morning boat trip is unavailable. Reservations may be available. departure time.

**Is camping available?**

Tent camping is available. Check with the park for details.

**What do I do now?**



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## Biscayne National Park



Biscayne NP because of the park's location relative to the airport and because of airspace interactions with Miami International Airport. Alternative flight tracks could reduce TAamb up to about 10 minutes in western and southern areas of Biscayne NP, which would receive the most noise. The tradeoff would be that the relocated flight tracks would increase TAamb by a similar amount in the northeast portion of the park.

Advances in technology offer anticipated prospects for future noise reduction. Additional reductions in the noise made by large civil aircraft are expected to be in place years before Homestead Regional Airport would reach maximum use. Quieter aircraft of the future would reduce forecast noise effects in Biscayne NP beyond what can currently be quantified. Aircraft operational techniques and air traffic procedures that depend on advanced technology offer future noise abatement applications. Periodic reviews, at reasonably spaced intervals, of the noise effects of commercial airport

operation, considering actual noise at the time and available gains in technology, could be established to minimize noise to the extent possible for Biscayne NP in the future.

There are currently too many operational unknowns about the Commercial Spaceport alternative to be able to develop noise mitigation options. If this alternative were to be selected, specific mitigation measures would be developed as part of the analysis required for FAA licensing.

**Biological Resources.** Aspects of the Proposed Action and alternatives analyzed for potential effects on biota in Biscayne NP include changes in water discharged into Biscayne Bay, changes in water quality, and noise exposures. As noted above, surface water discharge from Military Canal to Biscayne Bay is expected to decrease, and would be accompanied by increases in groundwater flows. This would be offset by expected increases in surface water discharges and decreased groundwater flows due to secondary development. The net effect for the Proposed Action would be an increase in surface water discharges of about 2.0 percent and a decrease in groundwater discharges of about 1.4 percent of the projected baseline discharges from Military, Mowry, and Princeton Canals in 2015. The effects of the other alternatives would be smaller.

This amount of change would not, by itself, be expected to result in appreciable changes in the biota of Biscayne Bay. However, baseline population growth and development over the 15-year period between 2000 and 2015, independent of the reuse of former Homestead AFB, are anticipated to increase surface water discharges by about 8 percent and decrease groundwater discharges by about





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## Biscayne National Park

6 percent compared to surface water flows from the three canals in 1995. Therefore, the Proposed Action in combination with projected baseline growth could increase surface water discharges from the three canals by a total of about 10 percent above 1995 discharges. Wetlands behind the mangrove swamp bordering the western shore of the bay are not expected to be appreciably changed by the change in water regime.



The increase in nutrient and pollutant inputs is estimated to range from 1.2 to 2.5 percent over projected baseline levels under the Proposed Action (and less for the other alternatives). Some of the nutrients, especially un-ionized ammonia, would increase under the Commercial Spaceport alternative and, possibly, the Collier-Hoover proposal.

The net effect of the changes in nutrient and chemical inputs would probably include continued nutrient enrichment of nearshore seagrasses that fosters epiphytic growth of algae, reducing the vitality and growth potential of the seagrasses. Sediment toxicity near the mouths of the three canals would probably remain about the same. Therefore, ongoing impacts on biota in these areas would likely continue but not be discernibly changed.

As discussed above, noise from aircraft is not expected to get louder, but it is expected to be more frequent, particularly along the western shoreline of Biscayne Bay, which lies underneath many of the proposed flight tracks. Manatees and bottlenose dolphins in the bay and at the mouths of canals, wading birds along the mangrove swamp and on nearby keys, and crocodiles along the western shoreline would all be exposed to high noise levels from overflying aircraft. Current maximum noise levels in this area range from 92 to just over 108 decibels. Commercial aircraft, which would fly over this area most frequently, would be about 15 decibels quieter than military aircraft.

Manatees and bottlenose dolphins are expected to be little affected by these noise levels because they apparently habituate to noise. There is limited information to predict noise impacts on crocodiles, but it is expected that they would not be affected sufficiently to stop the expansion of their range northward from Turkey Point. Wading birds may flush or be startled during feeding, loafing, or roosting, but it is not anticipated that nesting birds would be sufficiently affected to abandon their nests. Some species of wading birds appear to habituate to high noise levels, while others may choose to relocate to quieter areas with suitable habitat.

Any reuse of former Homestead AFB property would have some effect on Biscayne NP resources, which have already suffered degradation from other sources. NPS is concerned that the cumulative effect would be to make it more difficult to prevent those resources from becoming further degraded. The analysis has attempted to identify opportunities to reduce impacts.



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## Protection of Nearby National Parks

### Everglades National Park

Everglades NP is the largest remaining subtropical wilderness in the continental United States. The park was established in 1947 to preserve the habitat and environment of the "river of grass." The park also contains fresh and saltwater areas, open prairies, tropical hardwood forests, offshore coral reefs, sloughs and swamps, lakes and ponds, and mangrove forests. For management purposes, the park is divided into general outdoor recreation areas, natural environment areas, outstanding natural areas, and primitive areas. Management objectives for Everglades NP include restoring and protecting the park in ways that allow natural processes, functions, cycles, and biota to be reestablished and maintained in perpetuity, thus providing park visitors a variety of opportunities to experience the park's unique subtropical values.



Everglades NP is farther from former Homestead AFB than Biscayne NP is and therefore potentially affected by somewhat different aspects of the reuse alternatives. The park is a Class I Prevention of Significant Deterioration area under the Clean Air Act. As such, both physical and visual degradation of air quality is a particular concern at the park. On the other hand, it is not tied into the canal system that drains former Homestead AFB and is too far to be affected by stormwater runoff from the former base.

Aircraft noise is an issue at Everglades NP, as it is at Biscayne NP, although its greater distance from the Homestead airfield means that, in general, aircraft would be at higher altitudes, and noise levels would be consequently lower. The park contains a number of sensitive species, most notably the endangered Cape Sable seaside sparrow, which exists solely in the grassy prairie along the eastern and western flanks of Shark River slough in Everglades NP. Visual impacts could also come from increased numbers of overflying aircraft, both during the day and at night. One of resources most prized at Everglades NP are the night skies. Aircraft identification lights would be an intrusion into the darkness. The aircraft would be at relatively high altitudes over most of the Everglades.

The following paragraphs provide more detailed discussion of impacts on air quality, noise, and biological resources in Everglades NP.





## Everglades National Park

**Air Quality.** The Clean Air Act charges federal land managers of Class I areas, which in the case of Everglades NP is the National Park Service, with an affirmative responsibility to protect the air quality related values of these areas from adverse air pollution impacts. These values, as identified by NPS, include visibility, flora, fauna, cultural and historical resources, odor, soil, water, and virtually all resources that are dependent upon and affected by air quality. The principal concerns listed by NPS for Everglades NP were visibility and impacts on sensitive plant species. The primary air pollutant of concern is ozone.

Air pollutant emissions that are precursors to ozone are nitrogen oxides and volatile organic compounds. Between the two, nitrogen oxides are of greater concern, both because existing emissions in the region are higher and because the increase in emissions attributable to the Proposed Action and alternatives would be larger than for volatile organic compounds. Therefore, the analysis concentrated on nitrogen oxide emissions as the limiting factor. It is estimated that the Proposed Action at full buildout would add less than 1 percent to the ambient

concentration of nitrogen dioxide at the eastern edge of Everglades NP, where emissions from aircraft would be most concentrated. This is not expected to exceed National Ambient Air Quality Standards or to measurably affect visibility in the park. Emissions in other areas of the park would be even lower. The other alternatives would generate lower emissions than the Proposed Action.

Increases in atmospheric nitrogen deposition from the Proposed Action were estimated for the eastern edge of Everglades NP. Annual atmospheric nitrogen deposition was estimated to increase by 0.06 pounds per acre in 2005 and 0.37 pounds per acre in 2015. Annual atmospheric nitrogen deposition rates in 2015 under the Commercial Spaceport alternative are estimated to be approximately 0.06 pounds per acre, or about 1 percent higher than the 1994–1998 rates. A combined Commercial Spaceport/Airport could increase that rate by an estimated 0.16 pounds per acre per year in 2015, or about 2.5 percent higher than the 1994–1998 rates. With the Mixed Use alternative, atmospheric nitrogen deposition is estimated to increase by 0.07 pounds per acre per year in 2015.



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## Everglades National Park

**Noise.** Everglades NP is currently overflowed by military and other government aircraft using Homestead ARS and by civil aircraft using other airports, including Miami International, Fort Lauderdale-Hollywood International, Kendall-Tamiami, and Homestead General. The loudest single event levels of aircraft noise occur under the straight-in approach to the Homestead ARS runway, along a north-south Visual Flight Rule corridor on the eastern edge of the park, and under an approach corridor that extends from the west across the north-central part of the park and that serves aircraft using Miami International, Fort Lauderdale, and Tamiami as well as Homestead ARS. The maximum sound levels (L<sub>Amax</sub>) from aircraft are as high as 75–85 decibels in the areas of loudest single event noise to below 45 decibels in western and southern areas of Everglades NP.

Average daily cumulative sound levels (in Leq(h)) from aircraft operations are less than 30 decibels in most of Everglades NP. This means that cumulative aircraft noise is generally below traditional ambient sound levels (all sounds except aircraft) in the park. Measured traditional ambient sound levels range from 31 decibels at Eastern Sparrow, a remote location, to 54 decibels at Anhinga Trail, a visitor site. The decibel average for traditional ambient sound levels measured in Everglades NP is the low 40s.



On the eastern edge of the park from its northern boundary down to the approach to Homestead ARS, Leq(h) ranges from 30 decibels up to 50 decibels closer to the park's eastern edge. The highest Leq(h) of 55 decibels occurs in one area at the eastern boundary of the park closest to Homestead ARS and Homestead General Airport. In general, the eastern edge of Everglades NP is affected more by general aviation aircraft using Homestead General and Tamiami airports, and by commercial aircraft using Miami International, than by Homestead ARS.





## Everglades National Park



Most of Everglades NP currently receives less than 1 minute of average daily aircraft noise above traditional ambient sound levels. However, there are longer durations of TAamb in the eastern portion of the park. Under the straight-in approach to Homestead ARS, TAamb is generally 10-30 minutes at areas in the park closest to the runway, and 1-10 minutes farther out under the approach corridor. Longer durations of TAamb, ranging from 10 minutes to over 2 hours, occur north of Homestead ARS along the Visual Flight Rule corridor and under the approach and departure paths of Miami International and Famiama airports. The areas receiving more than 2 hours of TAamb are in the northeastern corner of the park, which is attracted the most by Miami International Airport.

Noise levels under the Proposed Action would be lower in Everglades NP than in Biscayne NP because of greater distances from Homestead and higher aircraft altitudes. However, there would be noise increases in Everglades NP with a commercial airport. Unlike Biscayne NP, commercial aircraft would produce some of the loudest maximum sound levels over parts of Everglades NP at farther distances from Homestead Regional Airport, where civil flight corridors would diverge from military corridors. LAmax increases generally ranging from 5 to over 10 decibels are projected to occur along the western approach corridor in the north-central part of the park, and under approach and departure routes in the southeastern part. The highest LAmax in areas not dominated by military aircraft was calculated to be 62 decibels. Close to Homestead Regional Airport, where LAmax levels are higher, military aircraft would continue to be the loudest aircraft.

At maximum use, the Proposed Action could increase the amount of cumulative aircraft noise, as measured in Leq(h), between 5 and 10 decibels at the eastern edge of the park closest to the approach to the runway and in an area under the Visual Flight Rule corridor. Increases of less than 5 decibels in Leq(h) are projected along the approach corridor from the west, in a broader area under the Visual Flight Rule corridor, and under approach and departure routes south of Homestead Regional Airport in the southeastern park area. At maximum use of the existing runway, Leq(h) would still remain below traditional ambient levels in most of the park.



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## Everglades National Park

The amount of time that aircraft noise would be above other nonaircraft sounds in Everglades NP would increase as projected civil aircraft operations increased. In 2000 and 2005, TAamb would generally range from a daily average increase of 1–10 minutes along the western approach corridor to 10–60 minutes in the eastern area of the park. By 2015 and maximum use, the growth of commercial operations at Homestead Regional Airport would increase the daily average TAamb in these areas. Increases would range from 1 to 30 minutes along the western approach corridor, and from 10 minutes to over 2 hours in the eastern area. An increase of over 2 hours is projected for the area closest to the approach to the Homestead Regional Airport runway. Other areas of Everglades NP would experience no increases or increases of less than 1 minute a day.

Noise abatement flight track alternatives could reduce TAamb in portions of Everglades NP that would receive the most increases under the Proposed Action (i.e., the eastern area of the park and the north-central area under the approach corridor from the west). Decreases in TAamb could amount to 1–10 minutes per average day in some areas, 10–30 minutes in some areas, and over 30 minutes in other areas. The amount of decrease, and the extent to which decreases in some areas would involve increases in other areas, would depend on the flight track selected.

In general, technological advances in aircraft noise reduction, aircraft operational parameters, and air traffic procedures are expected to result in future noise reductions of commercial aircraft operations that should be in place before Homestead Regional Airport would reach maximum use. Future noise reductions would also benefit Everglades NP.



Based on available information, a Commercial Spaceport alternative is expected have almost no noise effect on Everglades NP because its noise is expected to be primarily east and northeast of Homestead, in the direction of space launches. No increases in the LA<sub>max</sub> or Leq(h) are projected for Everglades NP if the former base is reused as a commercial spaceport, even at 2015/full buildout. TAamb for this alternative at 2015/full buildout is estimated to increase less than 3 minutes daily on average in some areas in the eastern portion of the park.





## Everglades National Park



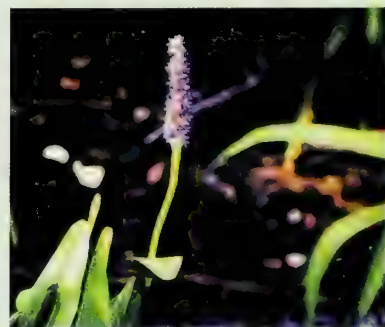
The Mixed Use alternative would not increase aircraft noise but would result in the same noise effects on Everglades NP as the No Action alternative; that is, continuation of military and other government aircraft operations at Homestead, together with overflights from other airports.

**Biological Resources.** Biota at Everglades NP could be sensitive to both increases in air pollutant emissions and noise. With the small percentage increase in ambient air pollutant concentrations predicted for the eastern boundary of the park, ozone-sensitive species are not likely to be discernibly affected. Directly west of the former base, maximum noise levels are currently 85 decibels or less. This would not change with the Proposed Action, but the frequency of noise events would increase. The amount of time that this area could be exposed to aircraft noise above traditional ambient sound levels could increase by more than 2 hours in some places. This might cause some



noise-sensitive wading birds to relocate their feeding or loafing grounds, but breeding and roosting habitat would not generally be affected. The highest noise level from civil aircraft in areas where noise from military aircraft is not currently dominant would be 62 decibels.

There are three Cape Sable seaside sparrow populations in Everglades NP. The closest is about 12 miles west of the former base. Under the Proposed Action, L<sub>Amax</sub> is projected to increase in some portion of all three populations. The largest increase (21.5 decibels) would be over a portion of the westernmost population, where L<sub>Amax</sub> could increase from 37 to 58.5 decibels. The highest L<sub>Amax</sub> at that population is projected to be 77 decibels, which would not be a change from current levels. The highest L<sub>Amax</sub> over the Ingraham Population would be 66 decibels, again, not changing from current levels. This population would experience the least change due to the Proposed Action. At the eastern population, the one closest to Homestead, where L<sub>Amax</sub> is projected to increase, the increase averages less than 5 decibels and raises the L<sub>Amax</sub> to a maximum of 77 decibels. There are areas of this population with higher L<sub>Amax</sub> currently, but they are not projected to change. Increases in T<sub>Aamb</sub> in the eastern population are projected to range from 4 minutes to over 3 hours per day on average at maximum use of the one runway. There is a potential for aircraft overflights under the Proposed Action to have a slight, temporary masking effect on the Cape Sable seaside sparrow and occasionally to disrupt breeding bird surveys at certain times in certain locations, for example where L<sub>Amax</sub> would be above 60 decibels and T<sub>Aamb</sub> would increase to 2 hours or more. Intermittent disruptions could also occur from continuing military aircraft operations under any alternative. Space launch operations are not expected to have any additional effect on these populations.



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## Community Noise

Airport operations produce noise, and individuals living near an airport may notice changes in their noise environment. Noise effects from aircraft operations are assessed using a variety of metrics. The metric used by the Air Force and FAA to characterize noise levels around airports and assess their impacts on surrounding people and land uses is the Day-Night Average Sound Level, designated as DNL. This metric is measured in decibels and represents the logarithmic average of all measured noise events during a 24 hour period. DNL takes into account the sound levels of all individual events, the number of times those events occur, and whether they occur during the day or at night. To account for the greater annoyance caused by noise intrusion at night, DNL incorporates a penalty for noise events between 10:00 p.m. and 7:00 a.m.

DNL levels are typically depicted as contours around the airport runway. In accordance with Federal Aviation Regulations, DNL contours of 60, 65, 70, and 75 decibels were developed and analyzed for compatibility with land uses surrounding the Homestead airfield. FAA has adopted land use compatibility guidelines for civil airports based on studies showing a relationship between DNL and the percent of people highly annoyed. Those guidelines indicate that all community land uses are generally considered compatible with DNL levels below 65 decibels. The most noise-sensitive land uses are residences, which are generally considered incompatible with noise levels above DNL of 65 decibels unless the residences have received adequate sound insulation to reduce interior noise levels.

About 6,458 acres around Homestead ARS are within the DNL 60 decibel contour as a result of current military and government aircraft operations. If a commercial airport were developed at Homestead, about 262 additional acres could be within the 60 decibel contour by 2005. By 2015, 1,344 additional acres could be within the contour, which would be about 20 percent more than with only military and government operations. At maximum use of the one runway, almost 1,600 additional acres could be exposed to DNL levels above 60 decibels. An estimated 439 existing housing units and 2,446 existing residents in the South Dade Center Housing Area could be within the 60 decibel contour at maximum use of the Proposed Action. Currently, 297 housing units with about 1,804 residents are

within the 60 decibel contour. If development near the airport was not controlled to preclude additional residential building, it is also possible that more residents could be living within the DNL 60 decibel noise contour in the future.

Within the DNL 65 decibel contour, an estimated 68 dwelling units with 513 residents are projected to experience increases of 1.5 decibels or more in DNL by 2015. This could increase to 219 units with about 967 residents at maximum use of the runway. Within the DNL 60–65 decibel contour, an estimated 43 dwelling units with 127 residents could experience increases of 3 decibels or more in DNL by 2015, increasing to 74 units with 219 residents at maximum use.





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## Community Noise

The same type of grid analysis that was used for the national parks and refuges has also been applied to the community in the vicinity of Homestead to describe noise effects using other noise metrics, although DNL remains the best metric for assessing community noise. A number of representative community locations were examined using noise modeling to assess the extent of change in aircraft noise levels under the Proposed Action.

At maximum use, the cumulative amount of noise (in DNL) could increase to 42 decibels at the Homestead Campus of Miami-Dade Community College, compared to the existing DNL of 39 decibels. City Hall in Florida City is estimated to increase from 35 to 39 decibels. Homestead High School could increase from an existing DNL of 43 decibels to 48 decibels at maximum use. The Keys Gate community could increase from 43 to 51 decibels. A portion of the South Dade Center housing area, acknowledged in the analysis to be incompatible with significant aircraft noise exposure levels, could increase from DNL of 69 to 71 decibels. The Homeless Trust Center on former Homestead AFB is estimated to go from an existing level of 54 decibels to 56 decibels. Residents in the

Naranja area north of the former base may receive an increase from 45 to 48 decibels. DNL in Redland, based on a sample point at the Redland Fruit and Spice Park, is estimated to increase from 37 to 40 decibels. Key Largo could increase from 23 to 31 decibels, Ocean Reef from 35 to 39 decibels, and Angler's Club from 35 to 40 decibels.

At most of the representative community points, aircraft noise at maximum one-runway use would still be below ambient noise levels in those locations. None of the representative locations, except South Dade Center, would receive cumulative amounts of aircraft noise high enough to be classified as moderate or significant under federal land use guidelines.

At the representative community points analyzed, the maximum noise level (i.e., the loudest aircraft heard) would be from military aircraft, except in the Naranja area, which would experience a barely perceptible increase of 3 decibels in maximum noise levels due to civil aircraft operations. With the exception of South Dade Center, none of the points analyzed would receive an increase in time that aircraft noise levels were above 65 decibels (the level at which some speech interference might be experienced) of more than 3 minutes a day on average. Most locations would have no increase in time above 65 decibels.



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## Community Noise

Although some space vehicles could be louder than conventional aircraft, the number of space vehicle operations is expected to be low. By 2015, there could be at most three space vehicle missions a week at Homestead. Specific flight tracks have not been developed for the Commercial Spaceport alternative. Based on available information, it is assumed that most of the noise increases from spaceport operations would be concentrated northeast of the airfield. The area within the DNL contour of 60 decibels and above is estimated to increase by about 435 acres by 2005 and 960 acres by 2015 if this alternative is implemented. This would encompass 315 existing housing units and affect an estimated 1,883 residents, about 960 more than with just military and government aircraft operations. New residential development in the area between now and 2015 could increase the number of people within the DNL 60 decibel noise contour, if land use controls are not adopted to prevent encroachment. The noise contours are not expected to change between 2015 and full buildout. The areas within the DNL 60 decibel contour projected to receive increases of 1.5 decibels or more, as well as the areas within the 60–65 decibel contour projected to receive increases of 3 decibels or more, are generally undeveloped, and no existing residents are expected to experience these increases in noise levels.

The Commercial Spaceport alternative would not increase the existing DNL levels at all at most of the representative community points analyzed. In 2015 and full buildout, the Homestead Campus of



Miami-Dade County Community College and the South Dade Center housing area could experience an increase of 1 decibel in DNL. DNL at the Homeless Trust Center and in Naranja could increase 2 decibels. The space vehicles are expected to be the loudest aircraft heard in those areas. The loudest single event aircraft noise at the other locations would continue to be from military aircraft operations. South Dade Center is estimated to receive 4 minutes average daily increase in time above 65 decibels in 2015/full buildout; the Homeless Trust Center and Naranja area, 1 minute average daily increase; and the other representative locations analyzed would experience no increase in time above 65 decibels.

The Mixed Use alternative would not add civil aviation operations. Aircraft noise levels from military and government operations at Homestead ARS are expected to be similar to current conditions.





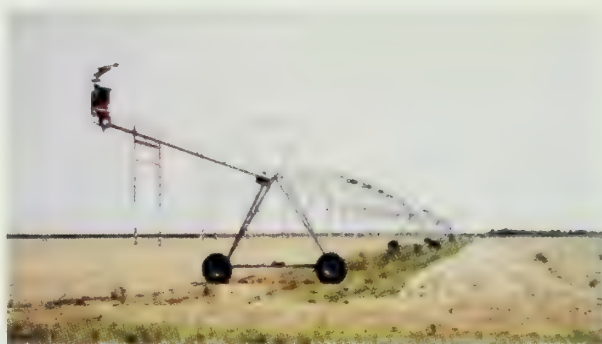
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## Agriculture

Agriculture has been identified as one of the priority components of the economy and lifestyle of south Miami-Dade County. In 1995, countywide earnings from agriculture were estimated at about \$195 million. Most of the county's agriculture is concentrated in the southern portion of the county.

In the vicinity of former Homestead AFB, agriculture is the dominant land use. In 1994, about 78 percent of the land in Miami-Dade County south of Eureka Drive was in agriculture. About 84 percent of this agricultural land was outside the Urban Development Boundary. Agricultural land is mostly located between urbanized areas within the UDB and Everglades National Park and, to a lesser extent, Biscayne National Park.

As urbanization has increased, some people have placed more value on the quality of agricultural land. To some, this land symbolizes a rural lifestyle. This rural character has also been cited as important for promoting ecotourism in the area.



Even with a moderate rate of growth, projected population increases can be expected to affect agricultural lands between now and 2015 independent of the reuse of former Homestead AFB. Baseline population growth over the next 15 years could result in development of another 8,500 acres for residential, commercial, and industrial uses in the south county. Although there is sufficient vacant land in the area to accommodate that development, it is likely that some of the development will occur on agricultural land. Given the county's current policy, land within the UDB is more likely to be developed than areas outside the UDB. There is agricultural land inside the UDB, but much of it has been fragmented into small holdings with marginal economic viability.

Reuse of former Homestead AFB property is not expected to directly affect agriculture, but secondary development and population growth associated with the reuse alternatives could have an indirect effect. Off-site development related to the Proposed Action could use about 2,000 additional acres of land in the local area by 2015, increasing to nearly 2,900 acres at full buildout.



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## Agriculture

This additional demand could not be met by vacant land within the UDB alone. It could be met by a combination of vacant land inside and outside the UDB, or by a combination of vacant and agricultural land inside the UDB. It is reasonable to assume that at least a portion of this development would be on land currently used for agriculture, and some of that land could be outside the UDB. For example, the Miami-Dade County Comprehensive Development Master Plan allows for low-density residential development outside the UDB. The extent to which agricultural land is developed before available vacant land depends in part on the degree to which development is restricted to the area within the UDB.

Secondary development related to the Commercial Spaceport alternative would be much less than the Proposed Action. An estimated 500 acres could be used for off-site development by 2015 and 650 acres by full buildout. This would likely have a minor impact on agricultural land. A combined Commercial Spaceport/Airport could generate off-site land use of about 1,100 acres by 2015 and about 1,200 acres at full buildout. In either case, there is sufficient vacant land in the UDB to accommodate the need, although it would be reasonable to expect that some agricultural land could be used. Under the Mixed Use Alternative, off-site secondary development could range from nothing to an amount similar to the Commercial Spaceport alternative, or as much as about 1,800 acres by full buildout. This could affect agricultural land, but not to the extent likely under the Proposed Action.

Concerns have been expressed that a commercial airport at former Homestead AFB could introduce agricultural pests like Medfly and citrus canker to south Miami-Dade County. Medfly has been eradicated from the county, but citrus canker continues to be a potential threat. The quarantine area for citrus canker now extends to the southern boundary of Miami-Dade County. Bringing commercial aircraft traffic to Homestead could make it more difficult to eliminate this pest.





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## Buffer Lands

Several agencies and organizations have recommended that a protected area be created between former Homestead AFB and Biscayne National Park to buffer Biscayne Bay from potential impacts of a commercial airport. The South Florida Ecosystem Restoration Working Group's Issue Advisory Team and Drafting Subcommittee reports, the Florida Department of Community Affairs' report to the Administration Commission, the Administration Commission's final Order on Chapter 288 amendments, and the Miami-Dade County Comprehensive Development Master Plan amendments all include proposals for a buffer area. In addition, the county's Wildlife/Habitat Management and Mitigation Plan for Homestead Regional Airport (June 1998) describes "Preservation Considerations for Areas Outside of the Former Base." According to the plan, the areas east and southeast of the former base are most significant for habitat protection and should be considered for preservation and management.

None of those proposals have included any details on the configuration or use of the buffer area. In September 1997, the National Park Service prepared the Homestead-Biscayne Buffer Area Report. This report identified the need for a buffer between urban areas and protected natural areas. The report concluded that "such a buffer is essential to protect the nationally and regionally significant resources and values of Biscayne National Park."

The NPS report analyzed the impacts of establishing a 15,000 acre land buffer between the park and the urban areas of southeast Miami-Dade County where existing agriculture and open space would be maintained. The areas would be located northeast, east, and south of former Homestead AFB, extending from Silver Palm Drive on the north to SW 360th Street in the south. The western boundary of the buffer would be defined by the existing Urban Development Boundary, which defines the extent of the land currently zoned for development. Low-density residential development (one dwelling per 5 acres) is permitted on agricultural land outside the UDB. The 15,000 acres analyzed by NPS includes agricultural (6,400 acres), open lands (4,000 acres), and environmentally sensitive lands already designated for protection (4,000 acres).

NPS does not propose to establish or manage the buffer, and the NPS report did not define a mechanism for implementing the buffer. The report did find that the buffer area would serve several purposes in protecting and restoring conditions in Biscayne NP. The key benefits of a buffer emphasized in the NPS report include:



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## Buffer Lands

**Park Resources.** NPS has concluded that water discharges from canals along the eastern shoreline and changes in surface water hydrology have degraded water quality in Biscayne Bay and can affect marine communities and wildlife. NPS is also concerned that scenic beauty, solitude, and quiet expected by visitors in a national park can be affected by changes in noise and pollution, developed landscape, and night lighting from urban areas. A buffer area could provide open space for managing surface water and restoring natural flow of water into the bay. It could also provide separation from urban buildup.

**Farmland.** Estimates of land needed for population growth in south Miami-Dade County imply continued absorption of vacant undeveloped and agricultural land. The report concludes that use of buffer lands for agriculture would be compatible with preserving park resources and would preserve the rural character of the area by limiting conversion of agricultural land.

**Tourism.** Tourism is a key component of the south Miami-Dade County economy. The report points out that preserving the qualities that the area promotes is essential to the continuation of tourism. As such, the buffer is expected to provide beneficial conditions for resources that are important for sustaining ecotourism.



**Public Health and Safety.** Much of the land analyzed for the buffer area is susceptible to hurricane winds and storm surge flooding. It is also in the center of an Emergency Planning Zone for potential accidents at Turkey Point Nuclear Power Plant. Therefore, the area is subject to potential risks and possible evacuation requirements. The buffer analyzed by NPS would reduce those risks by limiting population density in the area.

**Wetlands.** Wetlands along the shoreline are a major part of the natural ecosystem of south Florida. Construction in wetlands is subject to strict regulatory control and permitting. Preserving a contiguous wetland area in the southern tip of Florida is a goal of the South Florida Ecosystem Restoration Program and is intended to enhance natural conditions in several protected areas in Biscayne NP, Everglades NP, and throughout the Florida Keys. The buffer analyzed by NPS would be consistent with this goal.

There is currently very little development east and south of former Homestead AFB, in the area analyzed by NPS as a potential buffer. An area north of the former base and east of the existing Urban Development Boundary has been identified for urban expansion in the Miami-Dade County Comprehensive Development Master Plan. The area immediately to the southeast of the former base has tentatively been identified by the county for future expansion of the commercial airport.





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## Buffer Lands

Urban encroachment has been identified by Biscayne National Park as one of the principal threats to the preservation of the park. Although much of the area between the former base and the park has already been designated for protection, the area also contains a lot of agricultural land that may be vulnerable to development. The source of the development pressures is rapid growth and development in south Florida. Miami-Dade County has forecast a population increase of almost 250 percent in the southern portion of the county between 1995 and 2015. Although federal and state population forecasts are more moderate, it seems clear that the population density of the Homestead area is destined to increase dramatically, whether or not the former base is redeveloped. The establishment of a commercial airport at Homestead, as proposed by the county, could add to the projected population increases in south Miami-Dade County by an estimated 4 percent by 2015.



Miami-Dade County has estimated that the area analyzed by NPS contains about 4,900 acres that have been recently used for agriculture. The county's initial estimate for acquiring these lands is about \$85 million. The cost of acquiring the development rights has been estimated at about \$70 million. The county has indicated a preference for focusing on existing acquisition priorities (e.g., Environmentally Endangered Lands program) and implementing interim protective measures pending completion of the South Miami-Dade Watershed Planning Project and the county's Agricultural Study before establishing a buffer acquisition program. The additional interim protection initiatives suggested by the county include:

- Increasing the requirement for amending the Urban Development Boundary from two thirds to three fourths of the full membership of the Board of County Commissioners.
- Imposing the same requirement to approve any zoning for any use other than agriculture or residences on minimum 5 acre lots outside the Urban Development Boundary.
- Executing a memorandum of understanding between the county and assigned federal agencies providing those agencies an agreed upon role in the formulation or review of the Watershed Plan and/or agreement not to extend the Urban Development Boundary until the Watershed Plan has been adopted.

The consolidation and solidification of a commitment to protect Biscayne National Park from encroachment by establishing a buffer could affect environmental and socioeconomic conditions in various ways. The beneficial effects could include helping preserve agriculture and habitat for birds and other wildlife and preventing noise-sensitive development within airport noise contours, in addition to contributing to protection of Biscayne NP. Eventually, limiting the expansion of development would likely force densities within urbanized areas to increase. Future increases in property tax revenues could be curtailed by limitations on development of private lands within the buffer. If these lands were acquired in fee to form the buffer, property tax revenues would be eliminated. If development rights were acquired or transferred, property taxes would not be eliminated, but they could be limited to current levels. Depending on the scope and nature of a buffer, it could also complicate or prohibit construction of a second runway at Homestead Regional Airport.

A buffer west of Biscayne NP could be helpful in promoting the projects and initiatives of ecosystem restoration in south Florida. Projects like the proposed L-31E Flowway Redistribution would be located in that area. Miami-Dade County's proposed stormwater treatment and distribution area would also be within the buffer, on land already owned by the county. The Biscayne Bay Coastal Wetlands feature identified in the Restudy would also be largely located in this area.

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## Safety

The principal safety issues identified during scoping were related to the potential for aircraft accidents and the resulting consequences. Specifically, risks associated with a potential aircraft accident at the Turkey Point Nuclear Power Plant were of particular concern.

Accident rates of commercial aircraft are very low. FAA statistical data for the last five years identified 24 major and serious accidents with over 68 million flight hours. This translates into an accident about every 2–3 million flying hours. Based on the number of commercial aviation operations projected at Homestead Regional Airport in 2015 under the Proposed Action, an accident involving commercial aircraft could statistically be expected to occur once every 462 years with current accident rates. These estimates cannot actually predict when or where a mishap will occur. Aviation accident rates have historically declined with technological advances and enhanced safety measures. Therefore, accident rates are expected to be lower by 2015 and at maximum use of the runway.

The accident rate is higher for general aviation. Based on FAA data for the last five years, a fatal accident occurred about once every 61,000 flying hours. Using the estimated number of general aviation operations projected for the Proposed Action in 2015, a fatal accident would be statistically predicted once every 13 years.

There are no data available for commercial space vehicles, but FAA safety analysis criteria require operators to demonstrate that the risk of casualty will be within acceptable levels in order to be licensed. At a combined Commercial Spaceport/Airport, the addition of some commercial aircraft



operations could result in a statistical risk of an accident involving a commercial aircraft once every 2,112 years and involving general aviation aircraft once every 74 years. The Mixed Use alternative would not involve civil aviation at former Homestead AFB.

One factor that can increase the risk of aircraft accidents is the presence of large numbers of birds in the vicinity of an airport. The habitat around former Homestead AFB attracts a wide variety of birds. Techniques for dispersing birds, such as making loud, startling sounds, are used regularly at Homestead ARS. Vegetation control on the base is also used to reduce bird attraction.

Bird-aircraft strikes involving F-16 aircraft at Homestead ARS currently occur about once every 3,300 operations. There are no comparable statistics for civil aircraft. If the current bird-aircraft strike rate for F-16s were applied to the forecast civil aircraft operations at Homestead Regional Airport, an estimated 45 bird-aircraft strikes could occur annually by 2015, increasing to 69 at maximum use of the one runway. A serious aircraft accident is estimated to result from about 0.06 percent of bird strikes. These are only rough estimates, as there are numerous factors, such as aircraft size and speed, that could affect the actual number of bird-aircraft strikes. FAA has issued an advisory circular to assist airport operators in managing bird attractants on and near airports.





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## Safety

If an aircraft accident were to occur, the resulting environmental impacts would depend on the size of the aircraft, where the accident occurred, and the extent of the damage. Plants or animals in the immediate vicinity of the aircraft's impact would probably be killed. Off shore, fuels, oils, and hydraulic fluids would float and would be expected to disperse relatively rapidly. Lighter fuels would evaporate. Some heavier oils might sink. Most damage to marine organisms would occur along shorelines and intertidal areas, because the great majority of petroleum products would float. Coral reefs that are below the surface would generally not be expected to be affected, unless they were directly impacted by the aircraft. Physical damage to reefs could take as long as decades to recolonize. Other areas would be expected to recolonize more rapidly. Cleanup activities could cause additional damage if, for example, propellers of boats trying to get to the crash site damaged seagrass.

On shore, the most environmental damage would occur if an aircraft crashed in a wetland area. Fuels and oils would evaporate more slowly than off shore because they would not be dispersed as widely. Aquatic organisms could be smothered. Some fuel and oil could permeate into the soils and reduce the opportunity for vegetation to recolonize. In upland areas, spilled fuels and oils would not spread as far and damage would be more contained. Soils and vegetation in the impacted area would be damaged, but clean up and restoration would be easier and

more rapid than in wetland or marine environments. Cleanup operations would themselves create some impacts from vehicles and soil removal.

Florida Power and Light Company operates two reactor units at Turkey Point, approximately 5 miles from former Homestead AFB. The Nuclear Regulatory Commission licenses the plant. Part of the licensing process is a requirement for a safety risk analysis in accordance with federal regulations. The Code of Federal Regulations, Title 10, Part 100.10, requires that the risk of an accident resulting in significant radiological consequences be less than one in 10 million. Florida Power and Light Company conducted a risk analysis based on the number of aircraft operations previously estimated for Homestead Regional Airport and recently updated the analysis based on aircraft operations and flight paths identified for the Proposed Action. The analysis concluded that the probability of an aircraft accident preventing safe shutdown of Units 3 and 4 or resulting in radiological consequences in excess of dosages specified in the regulations would be approximately 3.63 to  $4.43 \times 10^{-7}$  per year. This was based on conservatively high estimates of accident risks and is within regulatory limits. The analysis was reviewed and approved by the Nuclear Regulatory Commission.



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## Possible Airport Expansion

This SEIS will not be used for a decision concerning possible future expansion of Homestead Regional Airport beyond the boundaries of former Homestead AFB. However, it does recognize such a possibility. If a commercial service airport at Homestead successfully captured niche markets and achieved forecast levels of operations, at some point the airport could reach its operating capacity. The operating capacity of the single runway at Homestead is estimated to be approximately 231,000 annual aircraft operations.

If and when growth approached that level, Miami-Dade County could propose to build a second runway to better accommodate the traffic demand and to more efficiently handle operations. In fact, the Airport Layout Plan developed by the county includes, for future facility planning purposes, a second runway, 9,000 feet long and located parallel to and 3,500 feet southeast of the present runway. If an expansion were to occur, the Airport Layout Plan indicates that about 1,060 additional acres would need to be acquired.

A new federal EIS would be required before any second runway could be approved or constructed,

in addition to any State of Florida requirements. Given the capacity of the existing single runway at Homestead, there is no foreseeable need for a second runway for capacity reasons until well beyond 2015. If the construction of such a runway were approved and operations began near the time the existing runway is forecast to reach 100 percent capacity, a second runway could begin operations around 2038. A two-runway system at Homestead might reach full capacity around 2057 or later. At capacity, an expanded airport could support up to 370,000 aircraft operations and serve an estimated 8 to 10 million passengers.

The ability to analyze environmental impacts so far into the future beyond a reasonably foreseeable time frame is highly speculative, particularly in an area of high technology like the aviation industry. Aircraft types, and the technological advancements that are certain to occur in the operation and control of aircraft, are not currently defined for conditions that may be some 30 to 60 years in the future. Considering the pace of changes in aviation that have occurred in the last 30 to 60 years, it is easy to understand that assumptions based on current conditions could rapidly become outdated in this high technology industry.





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## Possible Airport Expansion

A second runway cannot be accommodated within the boundaries of the disposal property at the former base and its implementation is uncertain. Because a second runway is speculative at this time, it is outside the scope and decisions of this SEIS. The federal decisions that will be made pursuant to this SEIS only involve the existing surplus property. Any expansion of the property boundaries in the future would require further FAA approval and additional National Environmental Policy Act analysis and public input. Nevertheless, public and agency interest has been expressed in the impacts of constructing a second runway. Therefore, some consideration was given to the types of impacts that might be expected if a second runway were constructed at Homestead Regional Airport. The following paragraphs provide some notional ideas of what those impacts might be.



The increased economic activity (employment, passengers) associated with an expanded airport could double airport-related earnings in south Miami-Dade County over levels projected for 2015 under the Proposed Action. The number of immigrating and relocating persons coming into the south county area could increase by an estimated 23,000. This could, in turn, double the estimated increase in traffic on local roads and also about double the projected increase in utilities demand.

Changes in air traffic routes in the region could be required to accommodate the increased aircraft operations, although anticipated technological advances may dramatically change air traffic procedures from those in place today. General aviation operations would not be expected to increase at a two-runway airport because of the volume of commercial aviation; general aviation pilots would be likely to choose less active airports to operate from. Technological changes and improved safety measures have historically enabled improvements to be made in aircraft safety, and accident rates have correspondingly been lowered. Today's statistical aircraft accident rate should not be presumed to remain the same for the future.



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## Possible Airport Expansion

Initially, the number of aircraft operations using the two runways would be the same as forecast for maximum use of one runway. Noise contours may change somewhat to reflect the redistribution of operations. If the airport continued to grow and arrivals and departures are assumed to be distributed relatively evenly on the two runways, the noise contours could be expected to widen by approximately 3,500 feet. Beyond the immediate airport surroundings, increases in the number of aircraft operations and potential modifications to flight tracks may increase the time aircraft noise would be above traditional ambient sound levels in some areas over the national parks. Noise levels have been declining, and new noise standards are being defined. Future aircraft are expected to be significantly quieter than current aircraft. Anticipated reductions in aircraft source noise can be expected to offset noise increases, but it is not known by how much.

Air pollutant emissions could also increase. However, newer aircraft engines are expected to have lower emissions, which would offset some of the effects of the increase in numbers of aircraft operations. It cannot be predicted precisely when or if a second runway will be constructed at Homestead, or how quickly the number of operations would increase, so quantitative calculations of air pollutant emissions could not be performed.

Similarly, the increase in stormwater runoff could not be precisely calculated, but based on the likely land coverage at the airport itself, on-site runoff from the airport might be expected to increase by almost 60 percent. The existing Boundary Canal system around former Homestead AFB would need to be altered, and portions of Military and Mowry Canals would need to be relocated to accommodate a second runway.

The area south of and parallel to the existing runway, where a second runway would likely be constructed, contains wetlands and habitat for the federally listed threatened eastern indigo snake and the state listed threatened rim rock crowned snake. Existing wetlands and other aquatic habitat, such as drainage ditches, and about 14 acres of remnant pine rocklands could be eliminated during the construction of a second runway. With the loss of wetland habitat, wading birds, including the



endangered wood stork, would have to relocate their foraging activities. Although there have been no recent sightings, the endangered Florida panther has been sighted in the past in the area of the possible airport expansion.

Before Homestead Regional Airport could be expanded and a second runway constructed, a detailed environmental impact analysis would have to be prepared examining these and other potential impacts in greater detail.



## Summary of Environmental Consequences

The summary table summarizes the environmental and socioeconomic changes of each of the alternatives analyzed in detail in the SEIS. These findings are summarized by the resource topics presented in the SEIS. The first column of the table presents the projected baseline, which reflects conditions that would be expected to prevail in the future without reuse of the disposal property at the former base. The projected baseline is the same as the No Action alternative.

The columns following the projected baseline/No Action alternative present the changes estimated under each reuse alternative. In most cases, data are presented for 2015, with some data presented for 2005. In general, information on full buildout is not presented in this table because of the uncertainty of the timeframe when full buildout could be achieved, as well as the variability in that time frame among the alternatives. In addition, projected baseline information is not available for full buildout.

Projected Baseline/ No Action Alternative	Proposed Action
<b>Socioeconomics</b>	
Projected baseline employment in south Miami-Dade County of 48,378 in 2000, 55,074 in 2005, and 68,464 in 2015. Earnings in south county projected to be \$1.4 billion in 2000, \$1.6 billion in 2005, and \$2 billion in 2015.	Employment in south county estimated to increase by 3,637 jobs in 2005 and 23,191 jobs in 2015. Earnings estimated to increase \$105 million in 2005 and \$673 million in 2015. Increase in employment and earnings in south county of about 7% over baseline by 2005 and 34% by 2015.
Projected baseline population in south Miami-Dade County of 182,324 in 2000, 201,414 in 2005, and 239,592 in 2015.	Reuse-related in-migration and relocation into south county estimated at about 518 by 2005 and 10,597 by 2015. Represents about 0.3% increase over baseline population growth in 2005 and 4% in 2015.
Baseline number of housing units in south Miami-Dade County projected at 63,796 units in 2000, 70,892 units in 2005, and 85,083 units in 2015.	Estimated need for about 188 additional housing units in south county by 2005 and 3,854 by 2015.  Minor increases in public service demands associated with population increase. Offsetting increase in tax base and public revenues available for operations and government services.
<b>Transportation</b>	
Total average daily trips from former Homestead AFB of 5,362 in 2000, 5,952 in 2005, and 7,517 in 2015. Maximum service capacity projected to be exceeded along segments of U.S. Highway 1.	Daily vehicle trips from former base estimated to increase by about 6,502 by 2005 and 44,601 over projected baseline by 2015. Traffic volumes on segments of SW 127 <sup>th</sup> Avenue, SW 288 <sup>th</sup> Street, and Krome Avenue would be at unacceptable level of service by 2015. Further aggravate exceeded service capacity along segments of U.S. Highway 1 projected in baseline.
Emergency evacuation time estimated at 8 hours for hurricane and 4.2 hours for accident at Turkey Point Nuclear Power Plant in 2015.	Hurricane evacuation time estimated to increase by about 20 minutes.  Evacuation time for accident at Turkey Point estimated to increase by about 12 minutes.

## Summary of Environmental Consequences

For these reasons, data on full buildout is not always suitable for direct comparison among the reuse alternatives and between those alternatives and the projected baseline/No Action alternative. An exception has been made in the Noise section of the table. There, information on maximum use of the runway at former Homestead AFB is presented in discussing the noise effects on the national parks and refuges in the region.

The summary in the table provides only a cursory overview of the impact analysis conducted for the SEIS. The potential impacts from reuse of the disposal property at former Homestead AFB involve a large number of complex factors that cannot be thoroughly described in a summary table. The full SEIS, as well as the preceding pages of this summary, provide a more complete discussion of impacts.

Commercial Spaceport Alternative	Mixed Use Alternative
<p>Employment in south county estimated to increase by about 3,532 jobs in 2005 and 8,472 jobs in 2015. Earnings estimated to increase \$103 million in 2005 and \$248 million in 2015. Increase in employment and earnings in south county of about 7% over baseline by 2005 and 13% by 2015. Combined spaceport/airport could increase employment and earnings by 32% in 2015.</p> <p>Reuse-related in-migration into south county estimated at about 504 by 2005 and 1,153 by 2015. Represents about 0.2% increase over baseline population growth in 2005 and 0.5% in 2015. Population increase with combined spaceport/airport could be 1% over baseline growth in 2015.</p> <p>Estimated need for about 183 additional housing units in south county by 2005 and 419 by 2015. Increase of 923 units by 2015 with combined spaceport/airport.</p> <p>Minor increases in public service demands associated with population increase. Offsetting increase in tax base and public revenues available for operations and government services.</p>	<p>Employment in south Miami-Dade County estimated to increase by between 3,320 and 9,039 jobs in 2005, and between 7,848 and 15,843 jobs in 2015. Earnings estimated to increase between \$94 and \$243 million in 2005; \$228–459 million in 2015. Increase in employment and earnings in south county of about 6–11% over baseline by 2005 and 11–23% by 2015.</p> <p>Reuse-related in-migration into south county estimated at about 426–805 by 2005 and 1,023–1,682 by 2015. Represents about 0.2% increase over baseline population growth in 2005 and up to 1% in 2015.</p> <p>Estimated need for about 155–293 additional housing units in south county by 2005 and 372–612 by 2015.</p> <p>Minor increases in public service demands associated with population increase. Offsetting increase in tax base and public revenues available for operations and government services.</p>
<p>Daily vehicle trips estimated to increase by about 7,103 by 2005 and 16,973 over projected baseline by 2015. Impacts on roadways similar to Proposed Action, except on SW 127<sup>th</sup> Avenue. Impacts of combined Commercial Spaceport/Airport about the same as Proposed Action.</p> <p>No increase in emergency evacuation time.</p>	<p>Daily vehicle trips estimated to increase by about 6,251–28,789 by 2005 and 18,822–48,931 over projected baseline by 2015. Impacts on roadways similar to either Commercial Spaceport alternative or Proposed Action, depending on intensity of development.</p> <p>No increase in hurricane evacuation time. Small potential increase (6 minutes) in evacuation time for Turkey Point emergency.</p>



## Summary of Environmental Consequences

Projected Baseline/ No Action Alternative	Proposed Action
<b>Utilities</b>	
Projected baseline water consumption in south Miami-Dade County of 208.5 million gallons per day in 2000, increasing to 279.3 million gallons per day by 2015. Will exceed capacity of three water treatment plants by between 11% and 41%, even with planned expansions.	Increase of 10.2 million gallons per day (4%) water consumption in south county by 2015. Further aggravate projected capacity problems at three water treatment plants if additional improvements are not implemented.
Projected baseline wastewater generation of 87.8 million gallons per day in 2000, increasing to 116.9 million gallons per day by 2015.	Increase of 4.7 million gallons per day (4%) in wastewater generation in south county by 2015. Within capacities of planned expansions except at one plant, where capacity would be exceeded by about 2%. Interconnected service able to divert excess to plants with available capacity.
Projected baseline solid waste generation of 782 tons per day in 2000, increasing to 1,088 tons per day by 2015.	Increase of 76 tons per day (7%) in solid waste generation in south county by 2015. Within capacity of disposal facilities.
Projected baseline electricity demand of 28,869 megawatt hours per day in 2000, increasing to 38,010 megawatt hours per day by 2015. Projected baseline gas demand of 110,553 therms per day in 2000, increasing to 145,278 therms per day in 2015. No gas service at former base.	Increase of 1,529 megawatt hours per day (4%) in electricity consumption and 5,039 therms/day (1%) in natural gas consumption in south county by 2015. No gas service at former base property. Within capacities of utilities services.
<b>Airspace and Safety</b>	
Military and government aircraft operations continue to use existing flight tracks.	New flight tracks established for civil aircraft operations. No major changes in airspace classification anticipated. New flight tracks and increased air traffic require management by air traffic control.
Class A mishap involving F-16 aircraft statistically estimated every 23 years.	Serious accident involving commercial aircraft statistically estimated every 462 years by 2015. Fatal accident involving general aviation aircraft statistically estimated every 13 years by 2015. No change in risk of mishap with military aircraft.

## Summary of Environmental Consequences

Commercial Spaceport Alternative	Mixed Use Alternative
<p>Increase of 1.3 million gallons per day (1%) in water consumption in south county by 2015. Increase of 2.9 million gallons per day (1%) with combined spaceport/airport. Further aggravate projected capacity problems at three water treatment plants if additional improvements are not implemented.</p> <p>Increase of 0.6 million gallons per day (less than 1%) in wastewater generation in south county by 2015. Increase of 1.4 million gallons per day (1%) with combined spaceport/airport. Within capacities of planned plant expansions.</p> <p>Increase of 21 tons per day (2%) in solid waste generation in south county by 2015. Increase of about 37 tons per day (3%) for combined spaceport/airport. Within capacity of disposal facilities.</p> <p>Increase of 270 megawatt hours per day (less than 1%) in electricity and 543 therms/day (less than 1%) natural gas consumption in south county by 2015. Increase of 503 megawatt hours (1%) and 1,202 therms/day (less than 1%) for combined spaceport/airport. No gas service at former base property. Within capacities of utilities services.</p>	<p>Increase of 1.4–3.0 million gallons per day (up to 1%) in water consumption in south county by 2015. Further aggravate projected capacity problems at three water treatment plants if additional improvements are not implemented.</p> <p>Increase of 1.0–1.6 million gallons per day (up to 1%) in wastewater generation in south county by 2015. Within capacities of planned expansions except at one plant, where capacity would be exceeded slightly. Interconnected service able to divert excess to plants with available capacity.</p> <p>Increase of 19–41 tons per day (2–4%) in solid waste generation in south county by 2015. Within capacity of disposal facilities.</p> <p>Increase of 244–427 megawatt hours per day (up to 1%) in electricity and 505–1,020 therms/day in natural gas consumption in south county by 2015. No gas service at former base property. Within capacities of utilities services.</p>
<p>New flight track needed for space vehicles. May require special advisories to pilots. Could interfere with routine airspace use during launching and recovery of space vehicles.</p> <p>Safety hazards and risks from space vehicle operations not yet known. Permitting and licensing of spaceport and space vehicle operations predicated on safety analysis and review, demonstrating level of risk meets FAA standards.</p> <p>At combined spaceport/airport, serious accident involving commercial aircraft statistically estimated every 2,112 years by 2015. Fatal accident involving general aviation aircraft statistically estimated every 74 years by 2015. No change in risk of mishap with military aircraft.</p>	<p>No change in airspace or safety from projected baseline.</p>



## Summary of Environmental Consequences

Projected Baseline/ No Action Alternative	Proposed Action
<p>Bird-aircraft strikes involving F-16 estimated 6 times per year. Serious accident statistically estimated to occur on 0.06 percent of bird strikes.</p>	<p>Estimated 45 bird-aircraft strikes per year by 2015, based on current F-16 rates. Serious accident statistically estimated to occur on 0.06 percent of bird strikes.</p> <p>Florida Power &amp; Light Company and Nuclear Regulatory Commission estimated risk of aircraft accident preventing safe shutdown of Units 3 and 4 at Turkey Point Nuclear Power Plant or resulting in radiological consequences above regulatory limits to be <math>3.63</math> to <math>4.43 \times 10^{-7}</math>.</p>
<b>Noise</b>	
<p>Estimated 6,458 acres exposed to Day-Night Average Sound Levels of 60 decibels and above. 60 decibel contour encompasses 297 dwelling units with estimated 1,804 residents.</p> <p>Maximum sound levels over national parks and refuges range from less than 45 decibels to over 100 decibels.</p> <p>Peak hour equivalent sound levels over national parks and refuge range from less than the traditional ambient sound level (all sounds except aircraft) to over 60 decibels.</p>	<p>Increase of about 262 acres exposed to Day-Night Average Sound Levels of 60 decibels and above by 2005, 1,344 acres by 2015, and 1,568 acres by maximum use. 60 decibel contour would encompass 33 additional dwelling units with about 184 residents by 2005, 96 additional units and 433 residents by 2015, and 143 additional units and 645 residents at maximum use of runway.</p> <p>Estimated 68 existing dwelling units (513 residents) within 65 decibel contour would receive increase in Day-Night Average Sound Level of 1.5 decibels or more by 2015; 219 existing units (967 residents) at maximum use. Estimated 43 existing units (127 residents) within 60–65 decibel contour would receive increase in Day-Night Average Sound Level of 3 decibels or more by 2015; 74 existing units (219 residents) at maximum use.</p> <p>Little or no change in maximum noise levels in Biscayne NP and Crocodile Lake National Wildlife Refuge (NWR). Increases from 5 to over 10 decibels in Everglades NP and Big Cypress National Preserve where civil and military flight corridors diverge. Loudest civil aircraft is 62 decibels in Everglades NP in areas not dominated by military aircraft.</p> <p>Peak hour equivalent sound levels at maximum use increase less than 5 decibels in national parks and refuge, except in area of Everglades NP nearest to runway and under flight corridor in eastern part of park.</p>

## Summary of Environmental Consequences

Commercial Spaceport Alternative	Mixed Use Alternative
<p>Estimated 14 bird-aircraft strikes per year by 2015, based on current F-16 rates. Serious accident statistically estimated to occur on 0.06 percent of bird strikes.</p> <p>Insufficient data to estimate risks at Turkey Point Nuclear Power Plant.</p>	<p>No change from projected baseline.</p>
<p>Increase of about 435 acres exposed to Day-Night Average Sound Levels of 60 decibels and above by 2005 and 947 acres by 2015. 60 decibel contour would encompass 11 additional dwelling units with about 40 residents by 2005; 18 additional units and 79 residents by 2015. No change between 2015 and full buildout.</p> <p>No dwelling units or residents within 65 decibel contour would receive 1.5 decibel or more increase in Day-Night Average Sound Level. No dwelling units or residents within 60–65 decibel contour would receive 3 decibel or more increase in Day-Night Average Sound Level.</p> <p>No change in maximum noise levels in Everglades NP, Crocodile Lake NWR, and Big Cypress National Preserve. Increases of 5–10 decibels in northern Biscayne NP, and 12–16 decibels in two areas on northern boundary of Biscayne NP.</p> <p>Peak hour equivalent sound levels at maximum use increase 5–10 decibels in a few areas and 15 decibels in one area on north and northwest boundary of Biscayne NP under space vehicle flight path. No increases in other parks or Crocodile Lake NWR.</p>	<p>No change from projected baseline.</p>



## Summary of Environmental Consequences

Projected Baseline/ No Action Alternative	Proposed Action
Amount of time that aircraft noise is more than the traditional ambient sound level in national parks and refuge ranges from less than 1 minute to more than 2 hours per day on average, depending on location.	Increase in average daily time aircraft noise above traditional ambient levels (all sounds except aircraft) at maximum use less than 1 minute in northeast Biscayne NP, south Everglades NP, and northwest Everglades NP. Increase of 1–10 minutes in central Biscayne NP, north-central and southeastern Everglades NP, and southern Crocodile Lake NWR. Increase of 10–30 minutes in western Biscayne NP, north-central and some eastern areas of Everglades NP, and central and southwestern Crocodile Lake NWR. Increase of 30–60 minutes in some eastern areas of Everglades NP and northern Crocodile Lake NWR. Increases of 1–2 hours in two areas on western edges of Biscayne NP and Crocodile Lake NWR and two areas in eastern Everglades NP. Increases of over 2 hours in eastern edge of Everglades NP nearest to the runway.
<b>Land Use and Aesthetics</b>	
<p>Disposal property in caretaker status.</p> <p>Continuation of existing aircraft noise from military and government aircraft operations in Biscayne and Everglades NPs and state lands.</p> <p>Development associated with projected baseline population growth could result in conversion of about 4,000 acres of agricultural land to development by 2015.</p> <p>Overflying military and government aircraft from Homestead ARS and civil aircraft from other airports in region visible in national parks. Aircraft identification lights may intrude on night skies in national parks.</p>	<p>Potential for incompatibilities between existing residential and reuse-related industrial development on and adjacent to the former base.</p> <p>Airport-related traffic and noise and secondary development could affect nearby residential communities.</p> <p>Increased aircraft noise could annoy some visitors in national and state parks and lands. Additional noise could make it more difficult for National Park Service to accomplish objectives to improve and preserve natural soundscape in Biscayne and Everglades NPs.</p> <p>Reuse-related off-site development could result in additional reduction of about 800 acres of agricultural land by 2015.</p> <p>Overflying aircraft visible more often from national parks. Increased potential for aircraft identification lights to intrude on night skies.</p>

## Summary of Environmental Consequences

Commercial Spaceport Alternative	Mixed Use Alternative
<p>Increases in average daily time above traditional ambient levels in 2015/full buildout could be less than 3 minutes in Biscayne NP, east Everglades NP, and Crocodile Lake NWR with infrequent launch schedule.</p>	<p>No change from projected baseline.</p>
<div></div>	
<p>Potential for land use incompatibilities similar to Proposed Action.</p> <p>Less off-site impacts on adjacent areas than Proposed Action and less secondary development projected.</p> <p>Most noise increases confined to areas northeast of runway, affecting northern edge of Biscayne NP; little noise effect on Everglades NP or state lands. Noise associated with a combined airport/spaceport similar to Proposed Action in 2005.</p> <p>Reuse-related off-site development could result in additional reduction of about 200 acres of agricultural land by 2015 (450 acres with combined spaceport/airport).</p> <p>Overflying aircraft from combined spaceport/airport visible from national parks. Potential for aircraft lights to intrude on night skies slightly higher than projected baseline; less than Proposed Action.</p>	<p>Potential for incompatibilities between residential and industrial development less than other reuse alternatives.</p> <p>Impacts on adjacent land uses dependent on type, rate, and intensity of development. High visitor use associated with Collier-Hoover plan could create traffic and circulation problems in vicinity of former base.</p> <p>Aircraft noise in national parks and state lands same as projected baseline.</p> <p>Reuse-related off-site development could result in additional reduction of about 200–500 acres of agricultural land by 2015.</p> <p>Visibility of overflying aircraft in national parks same as projected baseline.</p>



## Summary of Environmental Consequences

Projected Baseline/ No Action Alternative	Proposed Action
<b>Hazardous Materials, Hazardous Waste, and Petroleum Products</b>	
<p>Main hazardous materials stored and used on site include petroleum products, paints, thinners, cleansers.</p> <p>Air Reserve Station generates about 184 tons per year of hazardous waste.</p> <p>Estimated 912 off-site industrial facilities in south county by 2015. Off-site small quantity generators in south Miami-Dade County generate about 7,667 tons per year of hazardous waste.</p> <p>Cleanup of Installation Restoration Program sites at former Homestead AFB will continue.</p>	<p>Estimated eightfold increase in hazardous materials stored and used on site by 2015, including petroleum products, paints, thinners, cleansers.</p> <p>Increase of about 1,435 tons per year of hazardous waste generated on site by 2015.</p> <p>Estimated 40 additional off-site industrial facilities in south county by 2015. Off-site small quantity generators in south county would generate 339 additional tons per year of hazardous waste.</p> <p>Continuing cleanup of Installation Restoration Program sites at former Homestead AFB not expected to affect reuse.</p>
<b>Air Quality</b>	
<p>Miami-Dade County in attainment of all National Ambient Air Quality Standards; designated maintenance area for ozone.</p> <p>Nitrogen oxides of primary concern due to potential for ozone formation.</p> <p>Annual atmospheric nitrogen deposition in 1994–1998 estimated at 7.08 kilograms/hectare in Everglades NP and assumed to be about the same in Biscayne NP.</p> <p>Polycyclic aromatic hydrocarbons emitted from aircraft and ground vehicles; amount not known.</p>	<p>Increase in air pollutant emissions not expected to exceed National Ambient Air Quality Standards.</p> <p>Increase in nitrogen oxides of about 45 tons/year in 2005 and 392 tons/year by 2015. In 2015, this would be less than 1% of countywide emissions.</p> <p>Annual atmospheric nitrogen deposition could increase by 0.43 kilograms/hectare in Everglades NP and 1.61 kilograms/hectare in Biscayne NP by 2015.</p> <p>Increase in emissions of polycyclic aromatic hydrocarbons; amount not known but assumed to be proportional to increase in nitrogen oxide emissions (less than 1%).</p>

## Summary of Environmental Consequences

Commercial Spaceport Alternative	Mixed Use Alternative
<p>Additional hazardous materials potentially stored and used on site, including liquid oxygen, liquid hydrogen, hypergolic fuels, and solid rocket fuels, as well as petroleum products, paints, thinners, cleansers. Increase of about fourfold with combined spaceport/airport.</p> <p>Increase of about 438 tons per year of hazardous waste generated on site by 2015.</p> <p>Estimated 4–10 additional off-site industrial facilities in south county by 2015. Off-site small quantity generators in south county would generate 37–81 additional tons per year of hazardous waste.</p> <p>Continuing cleanup of Installation Restoration Program sites at former Homestead AFB not expected to affect reuse.</p>	<p>Less use of petroleum products and chemicals than Proposed Action or Commercial Spaceport alternative. Possibly more use of fertilizers and pesticides for on-site landscaping. Collier-Hoover plan includes limited use of non-persistent pesticides.</p> <p>Increase of about 49 tons per year of hazardous waste generated on site by 2015.</p> <p>Estimated 3–6 additional off-site industrial facilities in south county by 2015. Off-site small quantity generators in south county would generate 33–54 additional tons per year of hazardous waste.</p> <p>Continuing cleanup of Installation Restoration Program sites at former Homestead AFB could delay reuse and/or require changes to the Collier-Hoover plan.</p>
<p>Increase in air pollutant emissions not expected to exceed National Ambient Air Quality Standards.</p> <p>Increase in nitrogen oxides of about 19 tons/year in 2005 and 59 tons/year by 2015. In 2015, this would be much less than 1% of countywide emissions. Increase in nitrogen oxides with combined spaceport/airport about 62 tons/year in 2005 and 144 tons per year in 2015.</p> <p>Annual atmospheric nitrogen deposition could increase by 0.07 kilograms/hectare in Everglades NP and 0.22 kilograms/hectare in Biscayne NP by 2015. Combined spaceport/airport could increase annual atmospheric nitrogen deposition by 0.18 kilograms/hectare in Everglades NP and 0.63 kilograms/hectare in Biscayne NP by 2015.</p> <p>Increase in emissions of polycyclic aromatic hydrocarbons; amount not known but assumed to be proportional to increase in nitrogen oxide emissions (less than 1%).</p>	<p>Increase in air pollutant emissions not expected to exceed National Ambient Air Quality Standards.</p> <p>Increase in nitrogen oxides of about 17 tons/year in 2005 and 41 tons/year by 2015. In 2015, this would be much less than 1% of countywide emissions.</p> <p>Annual atmospheric nitrogen deposition could increase by 0.08 kilograms/hectare in Everglades NP and 0.20 kilograms/hectare in Biscayne NP by 2015.</p> <p>Increase in emissions of polycyclic aromatic hydrocarbons; amount not known but assumed to be proportional to increase in nitrogen oxide emissions (much less than 1%).</p>



## Summary of Environmental Consequences

Projected Baseline/ No Action Alternative	Proposed Action
<b>Earth Resources</b>	
Development associated with projected baseline population increase could result in loss of hydric soils and reduction of 4,000 acres of unique farmland by 2015.	Reuse-related off-site development could result in loss of small additional amount of hydric soils and reduction of 800 additional acres of unique farmland in south county by 2015.
<b>Water Resources</b>	
Stormwater runoff from former base estimated at 4,591 acre-feet/year. Discharges from Military Canal into Biscayne Bay estimated at 5,133 acre-feet/year.	Stormwater runoff from former base estimated to increase to 5,188 acre-feet/year (13% over baseline) by 2005 and 6,565 acre-feet/year (43% over baseline) by 2015. Surface Water Management Master Plan prepared for airport anticipated to retain most runoff on site. Discharges from Military Canal into Biscayne Bay estimated to decrease 31% by 2005 and 28% by 2015.
Combined stormwater discharges from Princeton, Mowry, and Military Canals estimated at 245,945 acre-feet/year in 2005, increasing to 255,338 acre-feet/year by 2015 with projected baseline population growth.	Reuse-related off-site development could result in net increase in discharges from Princeton, Mowry, and Military Canals into Biscayne Bay of 2.0% above projected baseline by 2015.
Existing ammonia in groundwater in vicinity of former base being slowly transported to Biscayne Bay by groundwater.	Net groundwater flows estimated to decrease by 3,664 acre-feet/year by 2015. Net nitrogen (ammonia) loads estimated to decrease by 9,792 pounds/year.
Any spills of fuels or chemicals at Homestead ARS generally contained in Boundary Canal system.	Any spills of fuels or chemicals on the site generally contained in Boundary Canal system.
Average annual atmospheric nitrogen deposition into Biscayne Bay in 1994–1998 assumed to be about 6 pounds per acre.	Reuse-related annual atmospheric nitrogen deposition in nearshore Biscayne NP estimated to increase 1.43 pounds per acre by 2015.
Current deposition of polycyclic aromatic hydrocarbons in Biscayne Bay; amount not known.	Increased deposition of polycyclic aromatic hydrocarbons in Biscayne Bay; amount not known.

## Summary of Environmental Consequences

Commercial Spaceport Alternative	Mixed Use Alternative
Reuse-related off-site development could result in loss of small additional amount of hydric soils and reduction of 200 additional acres of unique farmland in south county by 2015. Combined spaceport/airport could result in reduction of 450 additional acres of unique farmland by 2015.	Reuse-related off-site development could result in loss of small additional amount of hydric soils and reduction of 200–500 additional acres of unique farmland in south county by 2015.
<p>Stormwater runoff from former base estimated to increase to 4,912 acre-feet/year (7% over baseline) by 2005 and 5,968 acre-feet/year (30% over baseline) by 2015. Stormwater management system anticipated to retain most runoff on site.</p> <p>Discharges from Military Canal into Biscayne Bay estimated to decrease 31% by 2005 and 29% by 2015.</p>	<p>Stormwater runoff from former base estimated to increase to 5,004 acre-feet/year (9% over baseline) by 2005 and 5,280 acre-feet/year (15% over baseline) by 2015 with Market-Driven development. Market-Driven development may not include stormwater management system. Discharges from Military Canal into Biscayne Bay could increase 4% by 2005 and 9% by 2015. Collier-Hoover proposal likely to result in decreases similar to Proposed Action or greater.</p>
Reuse-related off-site development could result in net decrease in discharges from Princeton, Mowry, and Military Canals into Biscayne Bay of less than 0.1% by 2015. Net increase in discharges with combined spaceport/airport of 0.1% above projected baseline by 2015.	Reuse-related off-site development could result in net increase in discharges from Princeton, Mowry, and Military Canals into Biscayne Bay of 0.9% by 2015 with Market-Driven development (assuming no on-site stormwater management plan). Collier-Hoover proposal estimated at 1% above projected baseline.
Net groundwater flows estimated to decrease by 336 acre-feet/year by 2015. Nitrogen (ammonia) loads estimated to increase by 8,834 pounds/year.	Net groundwater flows estimated to decrease between 1,707 acre-feet/year (Market-Driven) and 1,627 acre-feet/year (Collier-Hoover) by 2015. Nitrogen (ammonia) loads estimated to decrease by 9,548 pounds/year with Market-Driven development and possibly increase by 1,870 pounds/year with Collier-Hoover proposal.
Any spills of fuels or chemicals on the site generally contained in Boundary Canal system.	Any spills of fuels or chemicals from continued military and government operations generally contained in Boundary Canal system.
Reuse-related annual atmospheric nitrogen deposition in nearshore Biscayne NP estimated to increase 0.19 pound per acre by 2015.	Reuse-related annual atmospheric nitrogen deposition in nearshore Biscayne Bay estimated to increase 0.18 pound per acre by 2015.
Increased deposition of polycyclic aromatic hydrocarbons in Biscayne Bay; amount not known, estimated at about 85% less than Proposed Action.	Increased deposition of polycyclic aromatic hydrocarbons in Biscayne Bay; amount not known, estimated at about 84% less than Proposed Action.



## Summary of Environmental Consequences

Projected Baseline/ No Action Alternative	Proposed Action
<b>Biological Resources</b>	
<p>Stormwater discharges to Biscayne Bay currently contributing to higher salinity and chemical and nutrient inputs. Fuels and oils released in event of aircraft accident and subsequent cleanup activities could damage biota on water surface and along shoreline.</p> <p>Many wetlands between former base and Biscayne Bay are protected, but unprotected wetlands may be affected by development associated with projected baseline population growth. Fuels and oils spilled in event of aircraft accident and subsequent cleanup could cause substantial, localized damage.</p> <p>Potential loss of remnant pine rocklands on disposal property through invasion of exotic plant species, if not protected.</p> <p>Wading birds forage in shallow wetlands on disposal property.</p> <p>Military aircraft operations currently generating highest maximum noise levels in Biscayne NP, especially along western shoreline of Biscayne Bay.</p>	<p>Identifiable effects on estuarine and marine communities unlikely. Fuels and oils released in event of aircraft accident and subsequent cleanup activities could damage biota on water surface and along shoreline.</p> <p>Development effects on wetlands anticipated to be minor due to protection under federal and state regulations. Fuels and oils spilled in event of aircraft accident and subsequent cleanup could cause substantial, localized damage.</p> <p>Probable loss of small area of remnant pine rocklands on airport, with potential for losses off site through secondary development. Some areas on airport identified for preservation in airport Wildlife/Habitat Management and Mitigation Plan.</p> <p>Small reduction in wading bird habitat on site.</p> <p>Civil aircraft noise about 15 decibels quieter than military aircraft but up to eight times more frequent along western shoreline of Biscayne Bay. Some species of wading birds may habituate to noise levels, while others may choose to relocate to quieter areas with suitable habitat. Increase in aircraft noise exposure could disturb wildlife, but based on available information, is not anticipated to affect the abundance or general distribution of sensitive wildlife populations or the viability of their habitat.</p>

## Summary of Environmental Consequences

Commercial Spaceport Alternative	Mixed Use Alternative
<p>Potential impacts on estuarine and marine communities similar to but less than Proposed Action. Less statistical risk of aircraft accident. Fuels from spacecraft accident likely to burn.</p> <p>Development effects on wetlands anticipated to be minor due to regulatory protection. Fuels spilled in event of spacecraft accident likely to burn.</p> <p>Possible loss of larger area of remnant pine rocklands on disposal property than Proposed Action if not preserved as part of development.</p> <p>Small reduction in wading bird habitat similar to Proposed Action.</p> <p>Increase in loudness of noise from spacecraft in limited area northeast of former base. Increase in frequency of aircraft noise events much less than Proposed Action.</p>	<p>Potential impacts on estuarine and marine communities similar to but less than Proposed Action. Potential effects from aircraft accident same as projected baseline.</p> <p>Wetlands unlikely to be affected and could increase under Collier-Hoover plan. Potential effects from aircraft accident same as projected baseline.</p> <p>Possible loss of remnant pine rocklands on disposal property. Identified for preservation in Collier-Hoover plan.</p> <p>Small reduction in wading bird habitat less than Proposed Action and Commercial Spaceport alternative. Increase in habitat under Collier-Hoover plan.</p> <p>Wildlife exposure to aircraft noise same as projected baseline.</p>



## Summary of Environmental Consequences

Projected Baseline/ No Action Alternative	Proposed Action
<b>Cultural Resources</b>	
No known significant cultural resources on former Homestead AFB. Development associated with projected baseline population growth has potential to affect cultural resources. Existing aircraft overflights of cultural resources and potential historic landscape in Biscayne NP.	On-site development not expected to affect significant cultural resources. No foreseeable adverse effect from secondary development on cultural resources. Increase in aircraft overflights of cultural resources and potential historic landscape in Biscayne NP.
<b>Minority and Low-Income Populations</b>	
Over 200 farmworker housing units exposed to Day-Night Average Sound Levels of 60 decibels or higher.	Additional farmworker housing units exposed to Day-Night Average Sound Levels of 60 decibels or higher by 2015.
<b>DOT Act Section 4(f) Lands</b>	
Section 4 (f) not applicable.	No direct or constructive use of public parks, recreation areas, wildlife/waterfowl refuges, or historic properties.

## Summary of Environmental Consequences

Commercial Spaceport Alternative	Mixed Use Alternative
On-site development not expected to affect significant cultural resources. No foreseeable adverse effect from secondary development on cultural resources. Small increase in overflights of cultural resources and potential historic landscape in Biscayne NP.	On-site development not expected to affect significant cultural resources. No foreseeable adverse effect from secondary development on cultural resources. Continued aircraft overflights of cultural resources and potential historic landscape in Biscayne NP by military and government operations.
No additional farmworker housing units exposed to Day-Night Average Sound Levels of 60 decibels or higher.	No change from baseline.
No direct use of public parks, recreation areas, wildlife/waterfowl refuges, or historic properties. Too many uncertainties for constructive use determination.	Section 4 (f) not applicable to this alternative.



## Mitigation Measures in the Proposed Action to Reduce Environment Impacts

Miami-Dade County has proposed several measures to be implemented in concert with development of a commercial airport at former Homestead AFB to reduce adverse effects from the Proposed Action. Some of these mitigations were required by order of the Governor and Cabinet, sitting as the Administration Commission, on the Homestead Air Force Base Reuse Plan put forward under the Chapter 288 process. Others have been developed independently based on previous consultations with federal and state agencies, including the National Park Service and South Florida Water Management District. These mitigation measures were documented in the 1998 amendments to the county's Comprehensive Development Master Plan.

The Administration Commission required preparation of three plans. They include:

- A Surface Water Management Master Plan to improve detention/retention of surface water on Homestead Regional Airport. This plan has been submitted to the South Florida Water Management District for review.

- A Wildlife/Habitat Management and Mitigation Plan to identify and preserve rare plants and wetlands on former Homestead AFB. This plan has been prepared.
- A Noise Management and Mitigation Plan. This plan is expected to be completed after the SEIS.

The Comprehensive Development Master Plan amendments approved by the Miami-Dade County Board of Commissioners specified a number of commitments to mitigate potential impacts of the development of former Homestead AFB. These included the preparation and implementation of plans, participation with other organizations, reduction of stormwater discharges into Biscayne Bay, and acquisition of land or development rights to support compatible uses around a commercial airport.

At one of the public hearings for the Draft SEIS, Mayor Penelas committed to development of Homestead Regional Airport as a one-runway facility. He also said the county would seriously consider returning 39 square miles of land in Big Cypress National Preserve to the federal government.

No specific impact reductions were assumed in the SEIS to reflect these commitments, except as they have been incorporated in the Surface Water Management Master Plan or the Wildlife/Habitat Management and Mitigation Plan. Even though the Administration Commission's decision has been reversed, it is expected that these plans would be part of any proposal to develop former Homestead AFB as a commercial airport.



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## Mitigation Measures Not Already Included in the Proposed Action

In 1997, two committees of the South Florida Ecosystem Restoration Working Group, the Homestead Air Force Base Issue Team and the Homestead Air Force Base Drafting Subcommittee, submitted recommendations to the Department of the Interior concerning the transfer of former Homestead AFB land. The Department of the Interior forwarded the recommendations to the Air Force.

Some of the recommendations included conditions to be placed on property transfer and actions that would be taken by federal, state, and local agencies. Most of them involved conducting studies and developing plans. The recommendations were:

- **Biscayne National Park Protection Buffer.** The Issue Team recommended that Miami-Dade County, supported by federal, state, and regional governments, acquire title, development rights, easements, or other interest in land to create a buffer between the former base and Biscayne National Park. Miami-Dade County has committed to the concept of a buffer, but not defined any details for it.
- **Water Resources.** Many of the recommendations for eliminating adverse impacts on water have been incorporated in the Proposed Action's Surface Water Management Master Plan. Miami-Dade County has also agreed to developing a Land Use and Watershed Management Plan.
- **Noise.** Recommendations for minimizing noise impacts included placing a limit on commercial aviation until a plan is agreed upon and implemented. Such a limitation was included in the Administration Commission's approval of Miami-Dade County's proposed Phase 1 development of the Proposed Action.
- **Air Quality.** The Issue Team recommended preparation and implementation of an Air Quality Plan subject to approval by the Department of the Interior. The plan would address impacts from aircraft emissions and increased automobile traffic.
- **Wildlife and Habitat.** The Issue Team recommended preparing and implementing wildlife and habitat management protection and mitigation plans for all state and federal listed wildlife resources impacted by activities on former Homestead AFB. A Wildlife/Habitat Mitigation and Management Plan has been developed for the Proposed Action that includes protection of some remnant pine rocklands on the former base and management of exotic vegetation.
- **South Florida Ecosystem Restoration.** Recommendations focused on placing conditions on the planning process and on construction and operations to ensure consistency with ecosystem restoration goals and ongoing studies and management plans.





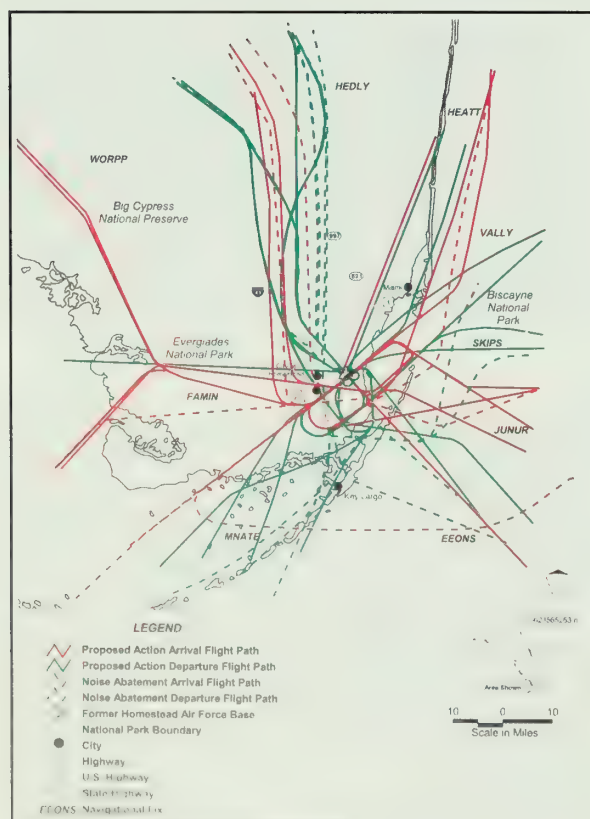
## Other Potential Mitigation Measures

Other mitigation measures identified in the course of preparing the Draft SEIS include restructuring some of the departure and arrival flight paths to reduce or eliminate aircraft noise in certain areas. The proposed flight paths for civilian aircraft operations included in the Proposed Action were developed in consultation with FAA Air Traffic Control officials and represent their estimation of the most efficient, safe utilization of the regional airspace.

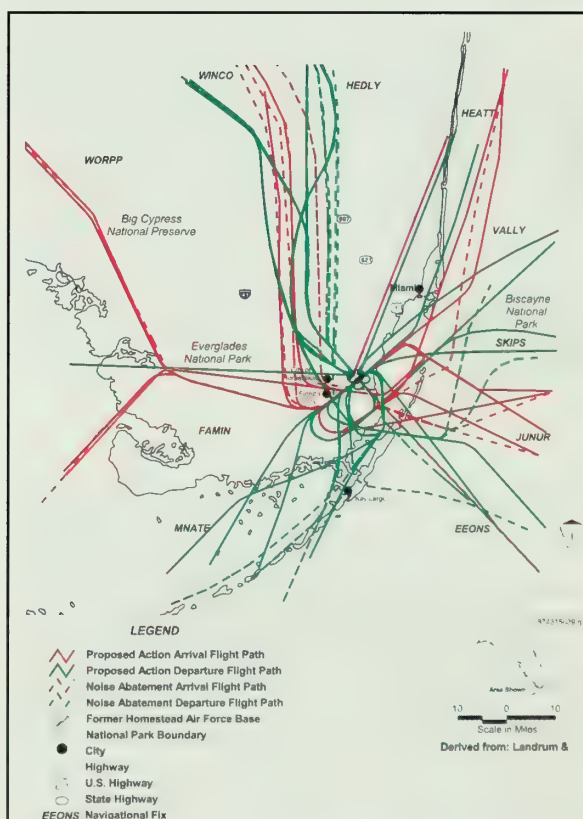
The National Park Service requested that FAA examine the possibility of eliminating all flights over national parks and refuges. If this were not possible, NPS requested that flight tracks spend the shortest time over the national parks. Flights over national parks and refuges cannot be entirely eliminated. Biscayne and Everglades National Parks and Crocodile Lake National Wildlife Refuge are relatively close to Homestead, and flexibility within south Florida airspace is restricted by other air traffic.

Several potential modifications to the Proposed Action flight corridors were examined to assess their potential for reducing impacts from the Proposed Action on noise-sensitive natural areas. Each alternative includes a relocation of some of the flight corridors, either away from the national properties or to different areas over those properties.

The noise abatement flight path alternatives result in very little change to noise levels in areas close to the runway. The effects of the modifications are more discernible farther out. In general, reductions in noise in some areas would result in corresponding increases in other locations.

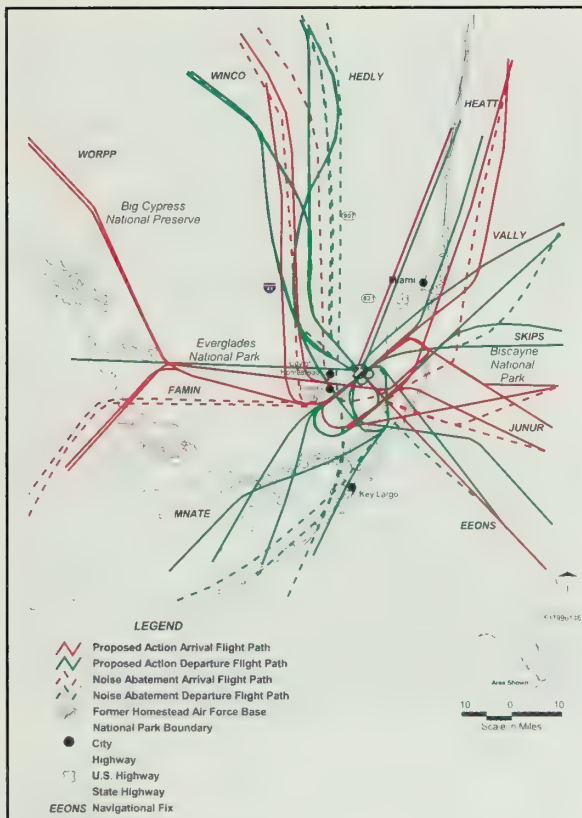


Noise Abatement Flight Path Alternative #1



Noise Abatement Flight Path Alternative #2

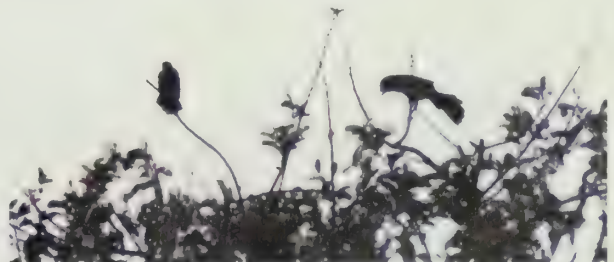
## Other Potential Mitigation Measures



**Noise Abatement Flight Path Alternative #3**

Other measures that could reduce environmental impacts are listed below by resource.

- **Socioeconomics.** Providing job training for Homestead area workers would increase their ability to get reuse-related jobs at the former site.
- **Transportation.** Adding lanes to some road segments that would exceed their service capacity would improve traffic conditions. Providing more mass transit to the Homestead area would reduce traffic congestion.
- **Utilities.** The additional demand generated by the Proposed Action, as well as the other reuse alternatives, may require revisions to utility expansion plans. In some cases, these plans need to be revised to accommodate baseline growth, independent of the reuse of the former base.
- **Airspace and Safety.** A bird-aircraft strike hazard mitigation plan could identify means for reducing risks to military and civil aircraft, especially in areas that attract large congregations of birds, such as wetlands. Vegetation control to discourage congregation of birds near the airfield might be needed.
- **Noise.** Measures for reducing aircraft noise could include relocating residents in high noise areas, structural sound attenuation of houses, land use controls to prevent new residential development in high noise areas, and flying techniques that reduce noise during takeoff or landing. Miami-Dade County, in consultation with other agencies, could develop a program to minimize noise in the community and the national parks. If a buffer is established, portions of the buffer could prevent noise-sensitive development within airport noise contours.
- **Land Use and Aesthetics.** Land use controls could be adopted in the Miami-Dade County Comprehensive Development Master Plan to prevent future incompatible land use from developing near the airport. Landscaping and buffering could be used to reduce traffic and noise impacts on the Homeless Trust Center. A program could be adopted to help preserve agricultural land from development.
- **Hazardous Materials and Waste.** Phased development plans could enable construction to begin in areas with no outstanding cleanup requirements. Pollution prevention plans, waste minimization plans, and spill prevention and response plans can reduce the risk of contamination from hazardous substances.





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## Other Potential Mitigation Measures

- **Earth Resources.** Invasion of exotic plant species on disturbed areas could be minimized by replanting areas that are disturbed during construction of facilities.
- **Air Quality.** Expanding transit options, including light rail access, would help reduce vehicle emissions and improve air quality. Air quality monitoring could also be implemented.
- **Water Resources.** In addition to the county's Surface Water Management Master Plan, further reductions in potential contamination could be achieved by building a stormwater treatment and distribution area. Then Military Canal could be blocked off before reaching Biscayne Bay. The Air Force is developing plans to remediate contaminants in the sediments of Military Canal, which would minimize any possibility that they could get into the bay. A land buffer between the base and the bay could help with management of surface water inputs and limit the development that would increase runoff. Water quality monitoring could also be performed.
- **Biological Resources.** The Wildlife/Habitat Mitigation and Management Plan would protect the most important remnant pine rocklands on former Homestead AFB. Deed covenants could be used to require protection of the pine rocklands with Small's milkpea. Surveys for the threatened eastern indigo snake are also recommended prior to construction. If any are found, mitigation can be developed to protect them.
- **Effects on Minority and Low-Income Populations.** Several mitigation measures are available to reduce the effects of elevated noise levels on nearby farmworker housing. These measures range from insulating the structures to relocating the residents.





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## Cumulative Impacts

The SEIS cumulative impact analysis recognizes other projects and activities planned for south Florida, including:

- A potentially higher rate of population growth in Miami-Dade County;
- South Florida Ecosystem Restoration;
- Central and Southern Florida Project Comprehensive Review Study (Restudy);
- Stormwater treatment and distribution area proposed by Miami-Dade County east of former Homestead AFB; and
- Widening of U.S. Highway 1.

High-growth forecasts for Miami-Dade County have projected that population in the southern portion of the county, south of Eureka Drive, could increase by almost 250 percent from 1995, to over 400,000 residents by 2015. Over the same time frame, the number of jobs is forecast to almost double (from about 40,000 in 1995 to about 80,000 in 2015). In the county as a whole, both population and employment are estimated to increase by almost 25 percent. This difference between forecast population and employment in the south county may indicate a trend toward becoming more of a bedroom community for the central and north county employment centers.

The cumulative effect of high population growth could result in development of an additional 20,000 acres of land in south Miami-Dade County by 2015. Reuse of former Homestead AFB could generate up to another 2,000 acres of development. About half of the development would probably be on agricultural land, reducing its dominance of the

south county landscape. At the same time residential land use can be expected to grow from about 8 percent to about 17 percent of the land south of Eureka Drive.

Increased population and development can result in higher demand for public services, increased traffic and utilities demand, and loss of wildlife habitat. Widening of U.S. Highway 1 could also contribute to increased impacts from development.

A number of wide-ranging restoration projects, many now only conceptually defined, are aimed at restoring, as much as possible, the ecological systems in south Florida. While the majority of these projects would be focused on the Everglades, significant components address water inputs to Biscayne Bay and the removal of exotic vegetation that has invaded disturbed land over the last few decades. Depending on the extent to which these projects are implemented, they could have substantial impacts on the environment of specific areas, including the area between the former base and Biscayne Bay.

Projects such as the L-31E Flowway Redistribution Project would affect the amount of water reaching Biscayne Bay and improve the quality through stormwater treatment areas, sheet flow, and increased groundwater inputs. Some of the additional runoff that would be caused by development in the Homestead area could be treated in the county's proposed stormwater treatment and distribution area, reducing pollutant concentrations in the water entering the bay. If the L-31E Flowway Distribution Project is implemented, Military Canal will no longer discharge into Biscayne Bay.





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## Cumulative Impacts

Implementation of the flowway project, the county's proposed stormwater treatment and distribution area, and other ecosystem restoration initiatives, if they were to occur, would be expected to improve or maintain water and habitat quality. Some aspects of the reuse of former Homestead AFB would support the goals of these initiatives (e.g., stormwater management) while others would not (e.g., increased surface water discharges.)

The development pressures that can be expected if the high-growth population forecasts are realized would offset and reduce some of the benefits of the ecosystem restoration projects, by increasing the amount of impervious surface and increasing stormwater runoff volumes and contaminants. Increased water demand and wastewater generated by this higher population would also have a countervailing effect. Secondary development associated with reuse of former Homestead AFB would contribute to those countervailing effects, but the contribution would be modest.



## Final SEIS Locations

Brockway Memorial Library  
10021 NE Second Avenue  
Miami Shores, FL 33138

Florida International University  
11200 SW 8 Street  
Miami, FL 33199

Florida International University  
North Campus Library  
3000 NE 151 Street  
North Miami, FL 33181-3000

Homestead Branch Library  
700 North Homestead Boulevard  
Homestead, FL 33030

Key Biscayne Branch Library  
299 Crandon Boulevard  
Key Biscayne, FL 33149

Key Largo Branch Library  
101485 Overseas Highway  
Key Largo, FL 33037

Miami-Dade Community College  
Homestead Campus Library  
500 College Terrace, Bldg D  
Homestead, FL 33030

Miami-Dade Community College  
North Campus Library  
11380 NW 27 Avenue  
Miami, FL 33167

Miami-Dade County Library  
6869 SW 8 Street  
Miami, FL 33144

Miami-Dade County Library  
101 West Flagler Street  
Miami, FL 33130

NOAA AOML Library  
4301 Rickenbacker Causeway  
Miami, FL 33149

Opa-Locka Public Library  
215 N Perviz Avenue  
Opa-Locka, FL 33054

South Dade County Library  
10750 SW 211 Street  
Miami, FL 33189

South Miami Branch Library  
6000 Sunset Drive  
Miami, FL 33143

State Library of Florida  
500 S Bronough Street  
Tallahassee, FL 32399-0250

University of Miami  
1252 Memorial Drive  
Coral Gables, FL 33124



### Point of Contact

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